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Child-Study

The Journal of the Child-Study Society

VOLUME I

1908

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BOOKS RECEIVED.

Nature round the House. Wilson Patten.
An Introduction to Child-Study. W. B. Drummond, M.B. (E. Arnold).
The Child's Mind : its growth and training. W. E. Urwick, M.A. (E. Arnold.)
Character Training in School. F. H. Ellis.
Studies in Historical Method. Mary Sheldon Barnes.
Reports on Chicago Parental School ; and Chicago Department of Child-Study.
French Song and Verse for Children. Helen Terry. (Longmans Green. 1s. 6d.)
Adventures of Robinson Crusoe. Daniel Defoe. (Longmans Green. 1s. 4d.)
Gods and Heroes of the North. Alice Zimmevor. (Longmans Green. 1s. 4d.)
Youth : its Education, Regimen and Hygiene. G. Stanley Hall, Ph.D., L.L.D.
Longmans' School Shakespeare. A. V. Houghton, M.A. (2s. 6d.)
The Magic Whistle and other Fairy Tale Plays. Frank Nesbitt.
Cradle Tales of Hinduism. The Sister Nivedita (H. E. Noble).
Zeitschrift für Pädagogische Psychologie, Pathologie, und Hygiene. (Berlin.)
How should we deal with current Socialism? Rev. J. O. Bevan.
Education and the Heredity Spectre. F. H. Hayward, Ph.D., M.A., B.Sc. (Watts & Co. Price 1s.)
Religious Education : how to improve it. Rev. C. L. Drawbridge, M.A. (Longmans. Price 1s.)
Longmans' Nature Stories for Children. Mrs. Roadnight. (Price 8d.)
Hints on the better organisation of Sunday Schools. Rev. J. O. Bevan.

Some Thoughts on Social Heritage. Miss E. A. Ogden ; Individuality of the Child. Howie Muir, M.D. Child-Study Society, Halifax. (Price 3d.)

Chapters in Popular Natural History. Rt. Hon. Lord Avebury.

A Cycle of Nature Study. M. M. Penstone.

Pioneers in Education. A new series of monographs by G. Compayne.
J. J. Rousseau and Education by Nature ; Herbert Spencer and Scientific Education ; Pestalozzi and Elementary Education ; Herbert and Education by Instruction. (Harrap & Co. Price 2s. 6d.)

A Treasury of Verse. For Little Children. M. G. Edgar. (G. G. Harrap & Co. 1s.)

The Cave Boy of the Age of Stone. Margaret A. McIntyre. (Harrap & Co. 1s.)

Ball Games and Breathing Exercises. Alice R. James. (Longmans. 1s. 6d.)

Longmans' Nature Poetry Book for Children. Asenath Smith. (Longmans. 1s.)

A Fairy Tale of a Dog and an Old Dame by the Sea. (Longmans. 6d.)

An Introduction to Psychology for use of School Teachers. J. H. Wimms, M.A. (Charles & Dibble. 1s. 6d.)

Pestalozzi. An Account of his life and work. H. Holman, M.A. (Longmans. 3s.)

Hygienic Physiology. W. M. Coleman. (The Macmillan Co. New York. 3s.)

The Bull of the Kraal and the Heavenly Maidens, a tale of Black Children. Dudley Kidd. (A. & C. Black.)

Some Characteristics and Requirements of Childhood. Alice Ravenhill. (Arnolds, Leeds.)

Disease in the Schoolroom. Dr. M. D. Eder. (1d.)

The Education (Administrative Provisions) Act in relation to the Inspection and Treatment of the Teeth. W. T. Elliott, D.D.S., L.D.S.

Child-Study in relation to Elementary Art Education. Earl Barnes.

The Institution of a Teaching Order. Rev. J. O. Bevan.

How to make our Girls graceful. G. E. Kelly and L. Henley-White. (G. Harrap & Co.)

Sixtieth Annual Report, Massachussetts School for the feeble-minded at Waltham, 1907.

Metropolitan Asylums Board, Tenth Annual Report of the Children's Committee, 1907.

Vaktijdschrift voor Onderwijzers.

La Revue Psychologique. The Psychological Clinic. (Philadelphia.) Les Archives de Psychologie. L'Educateur Moderne. Vol. I. Educational Review, 1907. Pedagogical Seminary. (Paul, Trench, Trubner & Co.) Band of Mercy. Parents' Review. Child Life. The Educational Times. The Journal of Education.

All books received are added to the Library of the Society, located at the School of Economics, Clare Market, W.C., where they can be seen and loaned by members on application to the Librarian of the School.

Vol. I.—No. 1. APRIL, 1908.

Child-Study.

The Journal of the Child-Study Society.

ADDRESS.

By the Hon. Sir JOHN A. COCKBURN, K.C.M.G., M.D.

Delivered before The London Society, October 15, 1907.

Not the least among the gains accruing to civilisation from International Exhibitions must be reckoned the rich harvest of scientific information yielded by the Congresses held on such occasions. Education has perhaps received more impetus than any other subject from individual knowledge thus collected and brought into common stock. It was at an International Conference on Education held at the World's Fair at Chicago in 1893, that one of the most important developments in modern education first took definite shape. An English Royal Commission had placed at the disposal of a Women's Work Committee certain funds provided by the City Livery Companies. Inducements were offered for the women teachers of Great Britain to attend the Conference, with the result that Miss Clapperton of Edinburgh, Miss Crees of London, and Miss Mary Louch of Cheltenham, availed themselves of this opportunity to cross the Atlantic. It is a common tradition that knowledge comes from the East, as population wends westward with the sun. But in the case of the psychology of the child, although the spark was originally derived from Europe, its gleam was reflected into parallel penetrating beams from the West. At this Conference Dr. Stanley Hall made use of the significant words, "Hitherto we have gone to Europe for our psychology, let us now take a child and place him in our midst and let America make her own psychology." It was indeed high time that the operation of the child's mind should be systematically and scientifically studied, for if in the Industrial Arts a knowledge of the material is of the first importance to the worker surely an intimate acquaintance with the nature of the child is of far deeper moment to the teacher. For the teacher has to deal with

the most precious of all material, and mistakes arising from ignorance of the nature of the child may be fraught with incalculable and never-ending evils. Any wrong treatment in the early years of life leaves indelible traces, and the unskilful teacher is prone to leave, as it were, ugly finger-marks on the soft and impressionable tissues and temperament of the child. For this reason child-study should have been one of the first subjects instead of the latest to be seriously investigated. The three delegates returned deeply impressed with what they had seen and heard, and as a result of the inspiration derived from the Conference, Child-Study Societies were formed by them respectively in Edinburgh, London and Cheltenham. The various Societies were in 1898 federated into an Association. Since the inauguration general meetings have been held annually in various centres. *The Paidologist* was also started in its course as the organ of the Association, thus the Child Study Association became firmly established, and the London Branch with its large roll of membership became one of the chief sources of systematic Child-Study.

When a movement is in accordance with the spirit of the age, Societies prosecuting similar aims arise in all directions wherever conditions are favourable, as individual flowers burst simultaneously into blossom under the genial influence of spring. The Child-Study Association owed its origin chiefly to educationists and teachers, but meanwhile scientific men were engaging in the same channel of investigation, with the result that a kindred body known as the Childhood Society for the Scientific Study of the Physical and Mental Condition of Children was formed. The Childhood Society was founded at a meeting in 1896 under the Presidency of Sir Douglas Galton, on the recommendation of a Committee appointed in 1891, by the International Congress of Hygiene and Demography. Earl Egerton of Tatton became President. The Society laid stress on the special care of feeble-minded children, advocated school hygiene and the appointment of medical officers by the Board of Education ; it also made many valuable reports and emphasised the necessity of a vigilant outlook for deficiencies of the senses in childhood, with the result that we no longer scold children for being blind nor beat them for being deaf. Lectures were organised by the Childhood Society whose titles were most interesting, and, in the light of after events, prophetic ; among them are to be noticed the subjects of Mental Fatigue, and the Educational Uses of Organised Play. A suggestion made by Lord Egerton for alliance with kindred Societies at the Annual Meeting in 1903, was taken up, and a joint committee from the Childhood Society and the London Branch of the British Child-Study Association was appointed. Dr. Fletcher

Beach was elected Chairman, and the two bodies arranged to work together in the matter of lectures, petitions to Parliament and investigation.

Eventually an amalgamation took place, and the Childhood Society and the London Branch of the Association now form a constituent society under the title of "The Child-Study Society, London." Doubtless the sum of the valuable work done by each of these societies in the past, will be surpassed by their combined efforts in the future. The *terra incognita* of the child is under these agencies being rapidly explored. It is now recognised that the child differs from the adult, not only in degree but in kind. Its ways are not our ways nor its thoughts our thoughts. The child is nearer to the future of the race than the man, and it has been touchingly and truly remarked by Miss Mason, that the child is as a prince committed to the fostering care of peasants. The Calvinistic idea that education must of necessity be painful has at last been discarded. Roger Ascham long ago remarked that young children were sooner allured by love than driven by beating to attain good learning. "It is doubtful if a great man ever accomplished his life work without having reached a play interest in it." Thanks to the advance of child-study, organised games are now recognised in the Code as a means of education. How different is this from the ascetic and unholy view that "Play of every sort should be forbidden, its vanity and folly should be explained to the child, with warnings how it turns the mind away from God and eternal life and works destruction to their immortal souls." In joy the thoughts are richer, and under the accompanying exaltation of the faculties new acquirements become infinitely easier. Moreover play affords the best means of self-expression, for, as the old adage has it, the characters of children reveal themselves whilst they are playing. It is of course not to be implied that education should be all pastime; the joy of overcoming is a natural instinct, and there is a keen delight in surmounting hills of difficulty. Aristotle touched a fundamental truth when he observed that pleasure accompanies the action of a healthy faculty on its appropriate object. In the unfolding of the mind there is something of the gladness of creation. It is written that when the foundations of earth were laid the morning stars sang together and all the sons of God shouted for joy. In this view the labours of both child and teacher are lightened, exalted and sanctified. Education becomes a matter of normal evolution instead of being remedial. It is no longer, as under the former pessimistic theory, primarily designed to eradicate the assumed naturally bad disposition of the infant. Thanks to the labour of the two Societies and kindred Institutions, it is now recognised that it is no longer sinful to be a child.

PHYSICAL ACTIVITIES AS A BASIS FOR EDUCATION IN THE SCHOOL AND AT HOME.

By W. A. BALDWIN, Principal of the State Normal School, Hyannis, Mass., U.S.A.

Lecture delivered before the London Society, January 31, 1908.

I know not how it is in England, but in America there is great dissatisfaction with educational methods, and a very general demand for readjustment.

A few years ago the Governor of Massachusetts, who had himself fought his way up through from the lower ranks, appointed a commission to investigate the demands for a different kind of education. This commission held hearings in all of the principal cities of the state. In writing up the report for the Commission, their secretary said that the people spoke appreciatively of the former work of the schools, but agreed that new demands must be met by readjustments. They said that the children as they now come out of our elementary schools at fourteen or fifteen years of age are lacking in several important directions, viz :—

1. They are not *ready* to work.
2. They are not dependable.
3. They are not self-reliant.
4. They have no appreciation of the value of money, of material, nor of time.
5. They have no appreciation of the fitness of things.
6. They are anxious to get *something* for *nothing*.
7. They are lacking in those sturdy simple characteristics so necessary to good citizenship.

These business men are not very clear as to a remedy, but they agree that these characteristics have, in times past, been gained through physical labour, so they suggest more hard work.

The same demand for some real, physical labour comes also from the modern professor of pedagogy. He says that knowledge to be real must be digested and assimilated. There must be expression as a means of working over and making it one's own. This requires an

opportunity, a situation. The situation must be natural, not artificial. The child must feel a *real* need and not just a make-believe need. Here comes the difficulty in the school, which has grown so artificial and so divorced from the real needs of the life outside.

I should like to tell you something of how we at Hyannis are trying to solve this problem which grows out of these demands of the business men on one side, and the pedagogues on the other.

Child Culture.

There are certain pedagogical principles upon which practically all educators since Pestalozzi and Froebel agree. These are taught in all of our normal schools, in the pedagogical departments of our colleges, and in our teachers' institutes and associations. When it comes to the application of these widely-accepted principles, there is no such uniformity. In fact, the uniformity is rather the other way, and many of the practices in the most of our modern city school systems are in direct opposition to these principles.

The Hyannis Normal College is attempting, not only to teach the doctrine of modern pedagogy, but to show how it may be applied to much greater extent than is common in our schools.

A Live Boy in a Live School.

We have taken as our motto, "A live boy in a live school." The fact is being recognised that the child must be prepared for life by learning to live. Life in school must be natural, many-sided and harmonious. Life at school must be related to life at home, on the street, in the field, and in the various human activities of the village; and, in order to keep the child truly alive, it has seemed necessary to plan for such physical and industrial training as seems best adapted to his progressive development. The industrial work is made the basis upon which to correlate the other kinds of school work.

This work is, in a way, a reaction against the extreme organisation of the modern city school. It has seemed to us as though the very marked modern tendency to combination, organisation and systematisation—the so-called factory system—has been getting a firmer and firmer grip upon our graded schools. All of the individuality and life is being systematised out of our children, and they are becoming mere automatons, sitting, for the most part, quietly at their desks, and moving, when they do move, together at the tap of the bell. Now we desire to change all this. Our motto, as has been said, is "A live boy in a live school." We are attempting to provide for some physical activities,

such as the normal child demands, and then to base the other lines of work upon these.

Domestic Economy.

We are trying to work out a course for the primary and grammar grades which will recognise the fundamental character of those physical activities which grow out of the social environment of the child, will encourage these activities, direct them and build upon them, correlating the so-called regular studies of the school with these basal activities.

We are starting with those activities which are found in nearly every home, and which serve as points of departure from which to reach out to all the rest of the world, present and past.

We plan to have such home activities as caring for the dining-room, the living-room, the bedroom, the kitchen and the kitchen garden, come into the school course three times during the course. For instance, in the first and second grades, the children are furnished with a small dining-table, a pretty set of play dishes, etc. A part of their schoolroom is fixed up for a dining-room, and for a few weeks the children play at preparing and serving meals, much as they do in many kindergartens, and, as in the kindergarten, lessons in cleanliness and table manners, language and reading, grow out of these activities in the school, and a discussion of kindred activities in the homes of children in other lands.

The children take great pride in being helpful, both at school and at home, and in reporting the helpfulness in the home to their teacher.

After having the dining-room activities for a while, they take up another room; and in the spring and fall they have the school garden, with walks into the fields and by the shore. The work as above described is supplemented by work in connection with the furnishing of a playhouse.

In the third and fourth grades the home activities are again taken up, but from a different standpoint. Now the bed and table and the other furniture to be used are of medium size, and the children have a real meal, but in a way appropriate for children of that age. The same activities are taken up for the third time in the grammar grades, but this time everything is from the adult standpoint, with regulation size for furnishings.

Correlation of School Work.

The regular school work is fairly well understood, and it need only be said that this is not crowded out by the newer kinds of work; but, on the other hand, it is so connected with these newer forms of work that new life is put into it. It means something to the child, and is,

therefore, much better done than ever before. This will be more fully understood from the illustrations which appear later.

Pupils have bought seeds, materials for hammocks, baskets and similar things, and have sold produce. They have banked money and paid bills with cheques, learning how to make and use all necessary business forms.

On pleasant days the children go out in groups with their teachers to study the various things in Nature, which will help them to understand what they read in their geographies and books of travel about similar things in other parts of the world.

Now it is important to notice how the newer forms of school work come to supplement the older, or the relation of the newer and older forms of school work. This may perhaps be best shown by the garden work.

The School Garden.

In the spring of 1901 it was decided that manual training for the seventh grade should take the form of gardening. A section of the campus, about one hundred and eighty by fifty feet was fertilised, ploughed and harrowed, and the seed was purchased by the State; then this land was turned over to the teachers and pupils. Meanwhile, the class had gained some valuable letter-writing experience in sending carefully written letters to seedmen. They had reviewed their knowledge of mensuration by measuring and measuring again the garden, and plotting off the same into different sections for the planting of the various kinds of seeds. Many discussions arose regarding the best time and place for the planting of the different kinds of seeds. These furnished splendid opportunities for connecting the home and the school, for the use of reference books, and for good live language work, both oral and written.

As soon as the weather was suitable the children began to prepare the ground for planting, and on pleasant days they worked in the garden, about an hour each afternoon. They became very observant of weather conditions. The different kinds of seeds were planted in their seasons, some, like lettuce and sweet corn, being planted at different times. Records were kept, in books provided for the purpose, of the time of planting, the time of coming up, and the various changes in the growing plants. Plants were compared as to their relative rate and manner of growth, and the ideas gained from these plants were used as a basis for reading of the growth of similar plants in other parts of the world. The first radishes were sold to the dormitory, and for these the class received their first cheque. This, with other cheques

and cash received from the sale of garden produce during the summer and fall, amounting to over thirty dollars, was deposited in the Hyannis National Bank. The whole class went to the bank and learned exactly how to make a deposit and to draw out money. Each pupil is provided with a blank book, into which he copied bills of produce sold, deposits made, and cheques drawn.

After the fall, term began, the same class, now the eighth grade, again assumed the care of the garden. They picked and sold tomatoes, sweet corn, squash and cucumbers, pulled beets and turnips, and saved corn, beans and other seeds for next year's planting. They also studied forms of fruit and seeds, and the relation of plants to some animal life, like the larvæ on the turnips and tomatoes, and the parasites on the tomato larvæ.

Hammock-Making.

After finishing the garden work, the class elected a president and secretary, and discussed what they should do with their money. They appointed a committee to consider the matter and to make recommendations. After several days of consideration the committee reported, advising the expenditure of not more than five dollars for a little class party, to which each member might invite a friend, the purchase of some cord for hammocks, the acceptance of the offer of their instructor to teach them how to make hammocks, which might be sold, and the proceeds of which might be added to the bank deposits. The report was accepted with enthusiasm. The pupils gained some good points in Parliamentary practice in connection with class meetings. They learned how to write notes of invitation for their party, and gained some valuable hints on entertaining. Before they could make their hammocks each was obliged to whittle out his own block and needle. This required considerable care and perseverance, but the hammock-making lured them on, and they persisted. Their interest has steadily increased, as they have grown in the sense of their own power to do something that has a commercial value.

Now, it seems to me that the home should do all it can for the child, then the school should take him, and, recognising what the home has done and is doing, should build upon this, supplementing and rounding out each individual child, helping him to discover his own powers and to make the most of himself.

I would like now to present a few well-known quotations from educators to whom we all look for leadership.

Comenius said: "Now there is nothing in the understanding which was not in the sense.

Rousseau went further, and put the matter in a different way when he first pointed out the intimate relation that exists between children and the material world about them.

Rousseau would not have the child go to school until he is twelve years old. During the first twelve years he is to lay the foundation for his future education. It is interesting to note that quite a different kind of a man, Luther Burbank, the wizard of plant modification, quite agrees with Rousseau, except that he makes ten instead of twelve the number of years required for this preparation. Let me quote from Mr. Burbank. In the *Century* for May, 1906, he says: "All animal life is sensitive to environment, but of all living things the child is the most sensitive. . . . A child absorbs environment. Put a boy born of gentle white parents among Indians, and he will grow up an Indian. The first ten years of his life should be spent in the open, in close touch with Nature—a barefoot boy, with all that implies for physical stamina. Keep the child out of doors, and away from books and study."

I suspect that few would entirely agree with either Burbank or Rousseau; but would we not sympathise with the purpose which was in the mind of each, viz., that children under ten years of age should be much out of doors, in close communication with Nature (their physical environment), learning how to adapt themselves to this environment, to understand it and use it, and so building up a basis for future development in a healthy body, a sane mind and a love of Nature?

Pestalozzi, a follower of Rousseau, saw more clearly than he, that though the physical environment is important, the social environment is much more important. He makes Gertrude say, "You should do for the children what their parents fail to do for them. The reading, writing and arithmetic are not, after all, what they most need. It is well and good for them to learn something, but the really important thing for them is to be something."

In another place Pestalozzi says: "The first development of the child's powers should come from his participation in the work of his home; for this work is what parents understand best, what most absorbs their attention, and what they can best teach. But even if this were not so, work undertaken to supply real need would be just as truly the surest foundation of a good education."

Froebel has been considered the great apostle of play. I believe that he has been misunderstood. He, more than any one up to his time, appreciated the value of play, but he emphasized the importance of play when the child is in the play stage, when play is to the child what

work is to the man. He believed that the child should be encouraged to grow out of the play stage into that of work.

In more recent years no one has pointed out more plainly than has Professor Dewey the great educational value of the activities which were so common in the homes of our great-grandfathers. Let me give a few typical quotations.

"The entire industrial process stood revealed, from the production on the farm of the raw materials, till the finished article was actually put to use. Not only this, but practically every member of the household had his own share in the work. The children, as they gained in strength and capacity, were gradually initiated into the mysteries of the several processes. It was a matter of immediate and personal concern, even to the point of actual participation." How very similar to the ideas expressed by both Pestalozzi and Froebel!

Again he says: "There was always something which really needed to be done, and a real necessity that each member of the household should do his part faithfully and in co-operation with others." Note here the "needed," the "real necessity" felt by every member of the household.

Such sayings might be multiplied indefinitely. They all emphasize the importance of environment. They demand a manual training for the young child which grows out of the immediate needs of the social group of which he is a unit. He must feel the need as a real one, upon which the welfare of himself and the rest of the social group depends. In other words, the product must be a contribution toward the economic wealth of the community.

Through this manual training the child must see himself becoming more and more necessary to the welfare of those about him. With his growing sense of power must come real joy in service for others.

The sentiments expressed by these are fundamental in the new education. They point the way not only in manual training, but in all parts of education, both in the home and at school.

But, some one says, this is all very well for the simple conditions which were in the minds of these educators, or for a country village like Hyannis, but here, in this great city (London), life is too complex. Let us consider the matter.

Every environment has its own needs. The activities which grows out of these needs furnish the means for the development of man. If we give over these activities to servants and artisans, then so much the worse for us and for our children, and so much the better for the servants and their descendants. Personally, I believe that every one ought to do some manual labour daily. Only so can one keep strong

physically, and be always ready to judge the great social questions in a sane, sympathetic way.

Emerson says on this subject: "I do not wish to overstate the doctrine of labour, or insist that every man should be a farmer . . . but the doctrine of the farm is merely this, that every man ought to stand in primary relations with the work of the world, ought to do it himself . . . and for this reason, that labour is God's education, that he only is a sincere learner, he only can become a master, who learns the secrets of labour."

Again, some say your theory is very fine if your children are never to go away from home, and are satisfied always to live the narrow life for which you are preparing them.

Hear what Goethe says along that line: "From the useful through the true to the beautiful." And again, in his wonderful "Wilhelm Meister," he says: "In all things to serve from the lowest station upward is necessary. To restrict yourself to a trade is best. For the narrow mind, whatever he attempts is still a trade; for the higher, an art; and the highest in doing one thing does all; or, to speak less paradoxically, in the one thing which he does rightly, he sees the likeness of all that is done rightly."

And you may remember that in the same book he pictures Theresa as finding that the knowledge which she had gained in managing the affairs of her small estate enabled her later to easily understand the affairs of the nation.

In closing let me say that in manual training, as in all subjects, we do well as teachers if we help the child to see the beautiful in the ordinary commonplace life about him. Walt Whitman has put the matter well for us when he says:

The commonplace I sing!
How cheap is health! How cheap nobility!
The open air I sing, freedom, toleration
(Take here the mainest lesson—less from the books—less from the schools).
The common day and night, the common earth and waters,
Your farm, your work, trade, occupation,
The democratic wisdom underneath, like solid ground for all.

INDIVIDUALITY AND IMITATION IN CHILDREN.

By Professor J. EDGAR M.A., Professor of Education, University of St. Andrews.

Lecture delivered before the London Society, December 6, 1907.

"Be thyself," said Emerson, "never imitate." This is impossible for man as a social being. There is no such thing as absolute originality. To think or act for himself a boy must learn first to think and act like others. A personality which showed none of the influences of imitation would be a monstrosity or a god. Every child starts with a nucleus of individuality—the loosely organised "bundle of tendencies" which he inherits. But soon the social organism in all its forms—home, school, community—is at work shaping all individuals to some measure of uniformity. Individuality indeed always keeps asserting itself, just as Nature is always producing variants from the common type. It is, in fact, by the action and reaction of individuality and imitation that healthy social progress is secured. The path to that higher individuality —which we call effective character—like the path to invention, lies through imitation. There is truth in the assertion that "the development of a child's personality is by the successive assumption of other people's personality." Mature individuality is the result of countless trials, rejections, and adaptations.

The influence of *Imitation in the making of character* is recognised in the most ancient philosophies and the oldest proverbs. Plato held that the young human soul is essentially imitative—assimilating itself to its environment. And he recognised that art, literature and social life were the main factors in this environment. One of the chief problems of education is to give the soul the right kind of surroundings, the right models to imitate. He would therefore not merely take care about the companionship of a child, but about the kind of art and literature which should be allowed to influence his life. Even in these spheres he would exercise such a supervision or censorship that only great and good men should win a place in the child's thoughts. The soul becomes like what it admires and grows accustomed to. The same belief in the moral force of imitation (or example) has always been held implicitly and explicitly by the Christian Church.

Yet strangely enough it is only recently that psychological science has fully recognised the pervasive force of imitation in every form of human and social activity. The general tendency even of thoughtful people was to glorify individuality as if it stood apart from and above imitation, and to give imitation an altogether lower place. Imitation was considered the mark of feebleness, and immaturity—it was quoted as a ground of reproach. One result of fuller psychological study, and of deeper investigation into our social consciousness has been that imitation is now regarded as a most important factor, both in individual growth and in social development. Individuals, social groups, nations are all to some degree imitators—and their success is in some proportion to the quality and extent of their power of imitation.

A faculty of imitation is a virtue, not a fault, a sign of teachableness and progressiveness. In its highest forms it is possessed by the few, and marks them off from the humbler many. Upon imitation both society and morality are held to depend. Speech, grace and dignity of movement, social adaptiveness, even successful invention are largely due to imitation. Education is to a large extent a matter of example and imitation, that is of the right kind of environmental suggestion and influence.

The hard doctrine of the absolute supremacy of physical heredity has been softened by the truth implied in Social Heredity. Through imitation the stock may benefit by inheritance of a good model. Inborn tendencies are not irresistible if they early meet the formative influence of a healthy environment.

We are optimistic as teachers because we believe that environment can be modified for good, that order, personal influence, social influence, the ideal influence of literature, go far to modify and control hereditary tendencies, to counteract what is evil and strengthen what is good.

Imitation is the means by which animals and men are able to take advantage of the garnered skill and practical wisdom of their race without the painful process of going through every experience. Through imitation we become heirs of the ages. It is through the instinct of imitation that nature seems to economize in individual structure, and in the risks of individual experience. Rousseau in his "Emile" would take the child out of society, and have him educated by an experience largely lacking in the influence of Imitation. In his protest against the social evils of his time, he forgot that the true humanity of man is possible only in a social environment, and that the virtues which mark man from beast are social virtues. He forgot that by imitation there is spread through a whole community the benefit secured by the special ability, or

the accidental discoveries of any of its members. The successes of individuality are shared by those who come within the range of its influence. The whole race profits by a successful experiment in living, not because its instincts are modified, but because through imitation the model is inherited.

Society and progress require both individuality and imitation. "The recognition of social relations is a recognition of conscious leading and imitation."

There are three forms of imitation which influence social life, conduct, social feeling and thought. They are—

1. *Tradition*, which is the imitation of the past. This influence is brought to bear upon the young in history, in institutions and in laws.

2. *Fashion*, the imitation of the present. The individual and social mind is continually at work shaping the past into new forms. Some of these forms are accepted by the majority, and become the fashions and customs of the day. Speech, dress, opinion, belief, all change in this way. The fashion has its short hour of supremacy, but its very success means that the hour of change has come.

3. *Ideals*. The third form (of imitation) is that which sets up an ideal and tries to imitate it. It imitates the future rather than the past or the present. Some men thus are said to be before their time. Their influence leads to that "divine discontent" which sometimes, at least, effects progress.

In a school all these forms of imitation are present. The past has its influence; the present is always working upon the young mind, and the ideal—which is usually some real hero projected into the ideal region—gains often a marvellous power over the adolescent life. Hence ideal examples who never lived may have a powerful influence upon young lives. Great deeds that never happened have been the inspiration of great deeds that are continually happening. Robert Chambers "raised statues in his heart" to the story-tellers who provided him with nobler patterns and a wider social life than his native village could supply.

The individuality of a child varies in accordance with the manner in which these three forms of imitation have been blended in the development of his character, and the degree in which they have been organised into a compact and consolidated unity. A strong individuality is a challenge to imitation.

A. *Imitation* varies with the *development of a Child's intelligence*. As the young mind develops from the instinctive to the higher ideational stage of intelligence, it is possible to distinguish no less than five different kinds of imitation. These are (1) the instinctive, (2) the

sensory, (3) the perceptual, (4) the imaginative, (5) the conceptual. There is an increasing degree of intelligence in each of these kinds, and we must be prepared to find the imitative power of children varying with their mental growth and even with their mental ability. The experience of one stage affects the imitation of the next.

These five kinds of imitation may be arranged into two groups. The first three require the actual presence of the model or pattern—the last two do not.

1. *Instinctive* imitation is a higher form of the unconscious mimicry by which some animals secure survival by assuming or acquiring the shape or colour of other animals or of their inanimate surroundings. The young animal or child spontaneously copies a movement or action. The rabbit instinctively runs when another rabbit runs in front of it. The flight of one bird in a flock is followed by the flight of all.

2. *Sensory* imitation is a natural reaction to a sensory stimulus—and differs from the instinctive kind in being wider in its operation, and not merely a fixed response to a special form of stimulus. The animal or child shows an unaccountable interest in certain movements or actions in the model—and manifests the interest not by passive observation but by a repetition of the movement or action. The interest arises when the action is observed. What part of the action shall be imitated seems to depend upon the individual constitution. In instinctive and sensory imitation the child does not put meaning or purpose into the imitation, but copies the action for the mere pleasure of doing so. The young bird imitates the old bird's song, the child, the mother's movement of hand or head. The movement in the model acts as a sensory stimulus and leads to a motor reaction similar to that observed. This kind of imitation tends to persist even in the adult. A spectator on the football field following with intense interest the movement of the players will often find at critical moments his leg jerking out as if to kick the ball as the player is doing. If we listen with pleasure to a familiar song, we shall find ourselves humming over more or less loudly the air that is being sung. This sensory form of imitation is what we see in those early forms of movement and speech which give so much delight to the young mother.

The movement thus started may lead to other movements, which seem imitative, but which are really part of an instinctive course of action. The first imitation gives rise to new sensations, which in their turn lead to new movements.

3.—*Perceptual* imitation also demands the presence of the model as a sensory stimulus, but it considers the meaning and purpose of the action. It is the beginning of *intelligent* imitation which recognises the

intention in the action observed, and reproduces the action freely as a means to a particular end. It may be observed, even in the higher animals, who are often able to imitate the actions of other animals, or of men, with a view to the result, and not merely for the sake of the action.

In perceptual imitation there is a process of selection. That part of the whole action is reproduced which is specially related to the purpose which the action accomplishes.

A child soon learns to use a key to open a box—not merely for the pleasure of doing what its mother does, but to do it for the purpose of getting the biscuit or sweetmeat which the box contains.

4. But all imitation is not of the sensory and perceptual type requiring the presence of a model. *Imagination* at an early age enables a child to recall the image of the model, and to imitate it though the model itself be absent. The literal imitation of the sensory stage, and the selecting imitation of the perceptual stage are supplemented by the imitation of imaginary characters, or of the picture in a child's mind of an action about which he has read.

Sometimes the examples which work most powerfully upon children's minds and lives come near to them in interest, though not in actual proximity. The heroes of legend and story—especially the simpler types of the distant past—find entrance into their hearts and minds. Because Plato knew this, he began the child's education with stories about gods and heroes—deeds worthy of being emulated, characters and lives worthy of being imitated, and he banished from his ideal state all stories or legends which "imitated" or "represented" actions or lives unworthy of being models for a boy.

5. *Conceptual imitation* is not far removed from conduct based upon thought and reason—that is from acting upon principle. The essential difference is that the principle is not an intellectual abstraction, but is embodied in a life, a story, or a work of art. The moral ideals of most men live in the person of some great teacher. Our ideal "has become flesh and lived among us."

Intelligent and educated men—and even children—imitate not so much the action or life itself, as the spirit of the action or life. Conceptual imitation approaches the Aristotelian conception which looks upon art as an imitation of the idea, or ideal—not merely its sensuous and changing appearance.

Thus conceptual imitation, like art, leads to original productions. The *imitatio Christi* throughout the ages has given us *heroes*, *martyrs*, *saints*. The infinite variety is not yet exhausted. Each life is an imitation, yet each life had its individuality.

B. *Imitation reveals Natural Tendencies.*—It is an axiom that we imitate what we admire. We admire that in which we have a sympathetic interest. Interest is a revelation of our nature. It depends upon structural and mental growth. Thus the child's voluntary imitation at any time shows the present "set" of its nature.

No two children are entirely alike—each child is "individual" in that he represents a different summation or totality of tendencies and capacities. The difference between children not merely in the same general environment, but even in the same family will soon be revealed by the responses which they make to the same pattern of stimulus. They will imitate different persons, or different traits in a person, or they will imitate in a different manner the same person and the same traits.

One child imitates one part of the model, another a different part; one child imitates in one way, another in a different way—each according to the sympathetic appeal made to his nature—and to his power of observation and reproduction. One child copies slavishly, and is a mere mimic, another copies freely and his copy is almost an original production. This is true whether the model is an action, or a drawing.

Individuality is shown in the choice of models to imitate, and in the manner of imitation, that is, in the treatment of the copy.

To choose a good model is to reveal a good nature, or a good taste; to choose a bad moral, or the worst aspects of a model, shows an inferior nature, or inferior taste.

Imitation also *reveals a child's capacities.* By imitating his playfellows, his older brothers, or his parents, he becomes aware through his failures and successes of his limits and his capabilities. He finds that there are many things which he can do, which before he resorted to imitation seemed beyond the limits of his power. His strength, his skill, his versatility, his inventiveness, are revealed and cultivated.

Imitation again may *hurry on the development of an instinct*, and may put meaning into feelings and emotions which have just begun to be felt.

In Meredith's novel, "The Ordeal of Richard Feverel," a time comes in Richard's development when for months "he had wandered about the gates of the Realm of Mystery, wondering, sighing, knocking at them, and getting neither admittance nor answer." But one day he sees Sir Austin bending over the hand of Lady Blandish, and raising it to his lips. This gave the boy the key of the mystery. His own father had given it to him.

Imitation for the same reason is a *guide to the plastic periods.* It is at the plastic period that the proper stimulus should be applied if we

would secure the proper reaction, and promote growth and development. Interest and imitation reveal the growing points of the bodily and mental structure. It is at the plastic period that imitation is effective in securing educational results. A well-known experimenter in bird breeding placed nestling linnets for training under three larks—a skylark, a woodlark, and a titlark. They all learned the notes of their respective instructors. One of these birds was afterwards placed in a room with two linnets and kept there for some months, but the plastic period—the time of imitation—was past, and it adhered to the song which it learned from its foster parent, the titlark.

There is in the same way a plastic period in children for the learning of speech, which is largely a matter of imitation. For the beginnings of spoken language from the ninth month onwards a child should be surrounded by persons who speak deliberately and clearly and distinctly. Mothers should avoid making the child's funny imitation of speech the patterns which the child itself bears for imitation. It hampers development to use "baby" speech too much, instead of speaking slowly, clearly and well in the hearing of the child and for the child's imitation.

When the plastic period for speech and ear-training is passed it is very difficult to get a bad accent or a slovenly mode of speaking corrected. There are many who retain throughout life the peculiarities of accent and pronunciation which they learned in a country neighbourhood as children.

In the same way ear-training should begin at an early period, when the child is making his early efforts at correct speech. Ear-training means the accurate discrimination and correct reproduction of sounds—articulate or musical. It depends on securing the interest and attention of the child, and through these encouraging imitation. "Every sound," as Mr. Cope Cornford says, "requires a particular movement of the vocal apparatus," and by imitation of a person in whom he is interested the child soon learns to adapt its apparatus unconsciously, and to discriminate with fair accuracy. If it does not learn during the infant period—say before seven—it may never learn to do so.

So also in regard to hand and eye training, between the ages of six and sixteen a boy is naturally imitative of all things and actions, which he sees made, or done with the hands.

That is the period during which he ought to have guidance in his imitation, so that he may secure that co-ordination of eye and hand, that manual dexterity, which is so useful in the more delicate operations of the higher trades and of science. The higher forms of manual training, and the higher delicacies of manual operation are possible only to those who have by imitation—graduated imitation—secured some measure of

mental control over the muscles of the fingers and hand. The games in which boys take part, and in which they have opportunities of imitating skilled players are an important part of "hand and eye" training, and in the graduation of games one may trace a rough if not a scientific training in muscular control.

Through games and the imitation they imply our race has gradually discovered how to render the instinctive capacity for motor response explicit and definite. Our scientific knowledge should help us to assist the games to which natural needs have given rise, and to guide the physical growth to greater perfection.

By *continual experiment in imitation* at different stages of his physical and intellectual development, the boy finds out the work he is best suited for, the path which is most likely to lead him to success. Imitation is a course of experimentation by which we find ourselves, a system of "trial and error" which leads to the construction of our own personality. The range of experimentation is limited by the needs of life, and by the fact that a young man must comparatively early make up his mind as to the means by which he is to earn a living; but there is a danger in too narrow a range, and lives have been marred by the fact that the young were not allowed a long enough time or a wide enough scope for imitating and then rejecting. At certain stages of his development a boy imitates the 'bus driver, or the soldier, the farmer or the engine driver—by his imitation he gains experience—he imitates, he he learns, he abandons. It would be foolish to take a boy's early interests and imitations as a sufficient guide, and from them decide when the boy is still young what career he is best qualified to follow. When however the interest and the imitation persist through successive stages of development—when the first imitation leads to a deeper interest and a more intimate imitation—and that again to a still deeper interest that is another matter. The imitation is indeed prophetic and points the way to the profession to which the boy's nature calls him.

There is another danger arising from too narrow a range for imitation. When children are so safely guarded from outside influences, that the only models they have a chance of seeing and imitating are those of the home—the result *may* be an intensity of interest arising from the lack of complexity in the outlook, and a concentration of purpose which may in the long run produce effective characters, but on the other hand children thus brought up are apt to be less adaptable, versatile and generally capable than those with a wider choice of models —and they are apt to be narrow in their sympathies, and lacking in the many-sidedness of interest which modern citizenship demands.

A boy may imitate another boy in some form of mischief-making—

and be all the better for it. If his nature is sound and his general environment good, he will learn by his imitation and pass on with his knowledge to imitation of a more satisfactory model. The mischief leads to trouble and pain, so he abandons it and enrols himself under a leader who represents good discipline and order.

A boy's heroes may have a boy's faults. It is only by the experience that imitation gives that he learns to discriminate between the good and evil which are blended in the natures of his companions. Even in his imitation of ideal characters in history or poetry or fiction, a boy may imitate the evil that goes with the good; but through imitation may come the knowledge which enables him to discriminate between the good and the evil. His experience gives him more of the wisdom of life.

There is a fine lesson in imitation contained in Browning's poem "The Eagle." "Dervish Ferishtah walked the woods one eve, and noted on a bough a raven's nest;" in it were young, gaping, hungry ravens—for beneath the tree lay the mother-bird dead. "Sudden there swooped an eagle downward"—bearing in his talons flesh with which he fed the starving brood. At the sight the Dervish exclaims—"Ah, foolish, faithless me! who toil and moil to eke out life, when lo! Providence cares for every hungry mouth!" And so, to profit by the lesson and in imitation of the ravens, he goes home and sits down to wait for Providence to send him food. But he waits so long that his head swims and his limbs grew faint with hunger. Then in a dream he is bidden to reflect again on what he saw, and is asked—"Which part in the scene was meant for man's example—the part of the helpless weaklings or the part of the helping eagle?"

His eyes are opened, and the model has a new meaning for his imitation. He rises and moves to Ispahan to play the eagle's part and feed the souls of others. The higher part of him made the better selection.

It was the first imitation that gave him the necessary experience, and the experience opened his eyes to his true relation to Providence and man. He found his individuality through outgrown imitation.

Thus it is often through imitation of patterns or actions, which are not fully grasped or understood, that the child's development as an individual, and as a socius—or consciously social being—steadily proceeds.

C. *Imitation is based upon interest*, and the interest may be at first the organic interest connected with congenital tendencies; but imitation keeps pace with the change and growth of interest.

The passive imitation of the raven was caused by the interest of

hunger, but the active imitation of the eagle came from the social interest of service.

Create in the child the higher interest, the higher imitation follows. But the learning and growing child has many fleeting interests. We must, therefore, expect a variety of brief imitations as he moves onward to the permanent interests which will regulate his life.

An artificial interest, however, may be sometimes created which gives rise to imitation of actions which are alien to the child's real nature at the time.

It would be a profitable thing for us, as parents or teachers, to go back over our own lives and try to estimate the influence of conscious and unconscious imitation upon our own moral and intellectual and social development. Where we remember consciously and voluntarily imitating, we should doubtless find that it was of some action or line of conduct which derived its special interest from the stage of our growth at the time.

What persons and on what occasions do you remember voluntarily imitating, and in what respects? Did you ever as a child voluntarily imitate your father or mother or teacher? If you did, in what respects?

It follows from this that though a child may (and, indeed, the child does) voluntarily imitate his parents and to some extent his teachers, for they do occasionally create in him some measure of interest, yet from the very nature of the child's interest, he imitates much more steadily and thoroughly children of his own age, or slightly older. He naturally does not appreciate the meaning and purpose of the movements and actions of his parents and teachers.

The interest aroused by adults in children may be *sympathetic*, and in that case there will be some measure of willing imitation; *unsympathetic*, and the result will be mimicry or caricature—the imitation is a criticism from the boy's point of view; *hostile*, and this leads to opposition and rebellion.

In the case of children at a similar or perhaps slightly higher stage of structural development, he is able to enter at once into that condition of sympathetic interest which calls forth voluntary imitation. He can more easily put a meaning into other children's actions and enter into that meaning. The actions and the purpose of the actions are not beyond his powers and interests. This is partly because in children's conduct, motive and result, cause and effect are not usually far apart, and partly because their conduct so often takes the form of play which is its own satisfaction, not a means to some remoter end.

That form of imitation which considers the meaning and purpose of an action, as well as the movements implied in it, will therefore more

often begin with imitation of other children than with imitation of grown-up people. The importance of companionship is thus made clear. In a school the boy is continually imitating companions, and this imitation is more definite (while it lasts) than that of parents or teachers. It is the principle of continuity which gives to parents the greater permanent influence. The persistent and long-continued presence of the parental model as example counts for a great deal in the final result. Companions change, but parents remain. The child is under the parental influence for many years, and through various stages of structural development. Thus through changing and evolving interests the adult model persists, and the voluntary imitation, though at certain times it may not be strong, combines with unconscious imitation, and gathers strength through its continuity. Every imitation of movement or gesture contains the germ of a habit. In families imitation does become habit. Thus family resemblances to a large extent arise from long-continued imitation, and tricks of movement, gesture, bearing and speech are passed on from one generation to another.

Postponed imitation.—It seems to me worth special note that though in many respects children do not immediately imitate their parents or teachers because their actions and conduct seem too remote to have the interest which demands imitation, or too complex for the understanding of the young mind, yet the parent's or the teacher's conduct and methods are stored up in memory by the children; and when, in the course of life, the child enters into an experience like that of his seniors—when he becomes a parent and therefore a teacher—he imitates the example which was set him long before. Imitation is often postponed till the fitting occasion calls it forth.

A father gives up smoking to set an example to his son. But the son smokes on—till his own son reaches the age when smoking becomes an attraction, and then he too gives up his pipe as his father did before him. Imitation profits by experience.

Imitation is therefore most marked between persons of similar interests, similar ages, similar grades of society, members of the same school. Imitation works more vigorously in a boarding-school than in a day-school, and in a school where the pupils are approximately in the same social rank, than in a school where many classes of society are represented. It is recognised that in order to enable a boy or girl to acquire the tone or style which characterises the better classes of society, a lengthened course of training at a good school is almost necessary. It is through mutual imitation, or imitation of the general progressive type represented by the senior pupils from year to year that this tone or style is acquired. Boys at Eton, Rugby or Harrow imitate each other, or

the ideal type which is traditional there—not their masters. Masters have indeed a direct and indirect influence in maintaining and improving the type, and in moulding the boys to its pattern.

A great school is therefore a college of imitation. The tone of the school finds concrete expression in its leading boys and girls. They are imitated directly or secondarily by the mass of the pupils. The opinions, tastes, interests, conduct of the mass, are thus moulded by assimilation to their environment. The choice of a school is the choice of an environment for our children. In making a choice those parents are therefore wisely guided who look not merely to the academic successes of an institution, or the brilliant record of its masters, but also, and not least, to the kind of boys who attend it, and become the chief educational influence upon each other. As an old public school boy recently said, "It isn't what the masters teach you that matters; it is what the boys teach one another. That's the lesson you never forget."

Probably individuality has a greater chance in the ordinary day-school. Marked individuality or eccentricity of thought or character is severely discouraged in an institution where boys govern boys, and the tradition and tone govern all. "Uniformity," it is said, "is the natural result of the public school system. Yet there is room enough for sufficient individuality to provide for progress.

It is through the senior boys—the sixth form—that the influence of the headmaster and his staff spreads by imitation over the whole school. To some extent the senior boys *do* imitate the head himself, and to a still greater extent they imitate the ideal which he holds up to them. The rest of the school voluntarily or compulsorily imitate the seniors—in matters, at any rate, which are included in the tradition of the school. Arnold "defended the system only on the assumption that the upper class shall be capable of receiving and transmitting to the rest, through their example and influence, right principles of conduct instead of the low ones natural to boys left entirely to themselves." "If I have confidence in my sixth," he said, "there is no post in England I would exchange for this."

THE NEUROTIC CHILD.

By P. CAMPBELL SMITH, M.D.

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We shall consider, first, the signs by which you may recognise the neurotic child; secondly, the chief points to be guarded against in education; thirdly, the means of guarding against them.

As to the signs by which you may recognise these children, in the first place they nearly all present one or more slight—very slight—malformations: more asymmetry of the head or face than is normal, a flattening of the hinder part of the head, a doubling of the whorl of hair called the "crown of the head," or its position too much on one side, or narrow jaws with irregular teeth and a highly vaulted palate, or slight malformations of the rim of the ear, the eyes or eyelids, nose, lips, or fingers, large tonsils and post-nasal adenoids, depression of the breast bone, and so on. A very few neurotic children are without such signs, and possibly a very few non-neurotic children have them; but if you notice them, regard them as danger signals, and be on the look-out for physiological and mental signs. I may add that there are also slight internal defects of development, which account for these children's delicacy.

As regards the physiological and mental signs, they differ at different ages, so it will be best to give a brief life-history of such a child up to adolescence.

It may be delicate from birth, but often the first sign shown is marked feverish disturbance at vaccination. However healthy the arm looks, there may still be a good deal of constitutional upset.

The same disturbance occurs when he is cutting his first teeth.

He may be lively, but tires too easily.

Sleep is often very irregular, and food may be refused frequently and very little taken.

He is very liable to colds and disorders of digestion.

He is more liable than other children to rickets and infantile scurvy.

When a year or two old he may sleep with his mouth open, and it will be found that he has post-nasal adenoids.

A little older he will be very liable to the eruptive fevers—he "catches everything," as it is said.

All strumous children are neurotic.

He often has hiccup, sickness, and the so-called stomach-ache.

Trifling derangements make him feverish, and some of these children have feverish attacks for which no cause can be ascertained.

He may eat gravel, wall-plaster, and other unwholesome things.

In boyhood he will still tire easily.

His hand will droop when at rest, from want of muscular tone. Dr. Warner of the London Hospital calls this the "feeble hand."

He will be very particular about his diet, strongly disliking many kinds of food, especially the fat of beef.

He may bite his nails or have other bad habits.

Children who develop spinal curvature are nearly always neurotic.

The acuteness of his senses will probably be below the normal, and so will his power of observation. Consequently his consciousness will be less vivid than that of a normal boy, and probably narrower in range. It is not sufficiently recognised that consciousness varies in degree, being very vivid in some, while others see all things as through a window, darkly. Moreover, it varies in the same individual under different circumstances, fatigue especially having a depressing influence on it. The imperfection of consciousness and observation will make him slower, for example, at finding a lost ball than his companions. The differences between children in this respect are well known.

Connected with this deficiency in external sensation is an increased susceptibility to internal sensation. This accounts for a good deal of the stomach-ache. Also it makes the child more self-involved.

Co-ordination is also less than it should be; hand and eye do not work together as in the normal boy. Thus he is worse at games, and altogether less handy than his companions.

He will be excitable, and what Dr. Warner calls "extra movements" will be readily aroused.

He will also be restless, unable to sit still, impulsive, irritable, and incapable of sustained exertion.

He may be bright and clever, and may have a good memory, but will be lacking in perseverance and attention and given to dawdling.

He may, on the other hand, be dull mentally. Remember that this may be due to defects, as of sight and hearing, that may be remedied.

He will very likely read a great deal, because reading requires less energy than playing games, or observing, or thinking. In fact, reading is apt to be a manifestation of laziness in people of all ages.

He will be weak of will, susceptible, and easily led—a most important point.

He will probably be physically timid, but may be led by emotions or ideals to perform very courageous acts on occasion.

He may be morbidly conscientious in matters of truth, but on the other hand may develop almost a genius for falsehood.

He will probably show some peculiarity of temperament, perhaps the commonest being shyness with outbursts of forwardness.

As he grows up he will take to day-dreaming, that most pernicious of habits.

He may be very hesitating, even exhibiting a slight degree of what the French call the *folie du doute*, *e.g.*, he returns again and again to a thing to make sure he has really done it.

In adolescence he is apt to form an exaggerated opinion of his own abilities. His suggestibility and lack of judgment render him liable to be fascinated by all sorts of new ideas and doctrines, to which he adheres with an obstinacy that savours somewhat of quixotism and somewhat of self-sufficiency. He may be wanting in reticence.

In adult life he feels an instinctive need of stimulation, and this may lead him into alcoholism.

The chief points, then, to be attended to in education are that he is delicate, that he tires easily, his senses are not acute enough, his consciousness not clear enough, his observation is not keen, his co-ordination not good; he is impulsive, excitable, emotional, ill-balanced, lacking in judgment, apt to worry, deficient in attention and power of sustained effort, given to dawdling and day-dreaming. At times he overtaxes his strength by sudden spurts, and this makes him more nervous. He is often chivalrous and has high ideals, but his impulsiveness often leads him into actions inconsistent with those qualities. This inconsistency must not be forgotten; he must not be supposed to be radically bad because he occasionally does very bad things. Another point about him is that he readily acquires bad habits, whereas it is very difficult—as well as very important—to train him to good habits. The reason why bad habits are so much more easy to acquire than good, is that they are usually of such a nature as to require no sustained effort of the will, whereas good habits do require such effort.

In education, then, we must first, as far as we can, make the neurotic child healthy. Food and dress need not be dwelt on here—except to say that short stockings are an abomination—but I must insist on the necessity for much sleep and much fresh air. The more these children sleep the better for them. They should be allowed to have an afternoon sleep—if they will sleep then—up to a later age

than other children. Fresh air is also most important. *The open-air treatment is as valuable for the neurotic child as for the consumptive.* All windows should be opened as widely as possible night and day, and blinds should not be lowered at night. At the same time the children should be kept warm, so the advice about open windows may be rather a counsel of perfection in the case of the poor in winter. They must be much in the open air, spending their time, as Sir Lauder Brunton says, in running about and shouting. These are the best exercises for them. In connection with this, I should like to say that it would be a good thing if every Board School had a large grass field round it into which the children were turned for an hour *during compulsory school-hours*, so that they might not spend it in running messages or loafing in the streets. After the age of five or six, massage and Swedish exercises are very valuable, but in early childhood they tire the child, using up the energy that would be better exercised in running about, and moreover they may bring on feverish attacks in those who are very liable to such things. Similarly with the cold douche, which is splendid for those whom it suits, but not every neurotic child can stand it. When these things are begun, their effect must be watched carefully. The organs of the special senses should be tested occasionally, and the teeth should be attended to. Carefully avoid startling or frightening these or any children. No tea, coffee or alcohol, or beef-tea, except in illness. They should not live in relaxing climates. Never allow them to overtax their strength; remember that exhaustion is very bad for the nervous system.

Methods of educating the senses.—I wish to insist on three things: first, the importance of sensory education; a child whose senses are not acute enough is thrown back on its internal sensations, and so becomes more self-involved and more neurotic, and is more liable to develop hysteria or neurasthenia or, in later life, hypochondriasis. Secondly, sensory excitations soon tire these children, and must not be continued for too long at a time. Thirdly, all the senses should be developed. Owing to the complex associations of the different parts of the nervous system, anything that appeals to several senses has far wider relations than if it acted on one sense only, and the perception and recollection of it are correspondingly clearer. It is more than possible that there would be a general rise of intellectual power in the world if we ceased to neglect certain senses as we do at present.

Motor education—the education of the activities—is also most important. To allow sensory impulses to waste themselves in diffuse emotional movement, instead of being followed by prompt and appropriate action, leads to narrowing of the field of consciousness,

emotionalism and day-dreaming, *i.e.*, it makes these children worse. Moreover, it leaves part of the brain undeveloped; it results in perpetual inability to perform certain complex actions that must be learnt in the plastic age; and it leaves the will weak and the individual inefficient, not only in emergencies but also in the ordinary affairs of life. To possess all-round physical dexterity is to feel a sense of mastery that brings with it a greater love of action and renders one more prompt and energetic and less apt to worry. I don't know if you realise how much of the unhappiness of the world is due to the habit—and sin—of worrying. A motor education is an education of the will. To attain this, it is not enough to check "extra movements"; activity and a prompt and appropriate response to sensory stimuli must be encouraged and co-ordinations carefully trained.

Now the school where the senses and the activities are best trained is beyond question the Kindergarten. The application of Kindergarten principles should not cease at the age of seven, but should be carried on throughout school days, and indeed, with the necessary modifications, throughout life. Manual training schools are excellent for older children; not only do they educate hand and eye together, but they develop promptness, precision, initiative and self-reliance.

The Kindergarten also affords an excellent education of the powers of observation—and so of consciousness.

Dawdling and day-dreaming are habits very difficult to deal with. It is all very well to say that the child must be made to be active, but remember that neurotic children tire easily. Dawdling and day-dreaming have a reason, like everything else. They enable a tired nervous system to repose, and though they should be rigidly suppressed, something even more restful must be substituted. One cannot lay down precise rules; all one can say is that these children should be encouraged in activity, but should be closely watched, and on the first symptoms of fatigue showing themselves they should be made to rest, and probably some one should stay beside them and talk to them, so as to prevent their minds from straying in undesirable directions. This of course necessitates a good deal of individual care. Opportunities for solitude must be avoided in these cases.

Impulsiveness, excitability, emotionalism, want of balance, also necessitate much tact and individual care on the part of the teacher. These things cannot be stifled; some of them may in part be directed into healthy channels, all of them may be diminished by the development of habits incompatible with them. Physical exercise lessens excitability and want of balance, prying over books in a stuffy atmosphere increases them. As regards directing these tendencies into

healthy channels, it must be remembered that these boys and girls are capable of high ideals, and high ideals should be set before them. Cultivation of the sense of duty is most important, and lessens the wrapping up in self. The formation of regular habits is also very important, and so is a training in absolute, prompt, unquestioning obedience. This will steady the mind, and settle it in healthy grooves from which it will not readily be blown by every gust of impulse. The Kindergarten is very valuable in the treatment of these conditions.

These children respond with exceptional readiness to encouragement. On the other hand, they feel the moral side of punishment more keenly than do others, and they cannot bear to be laughed at. Don't laugh at any little ones. Remember what Cicero wrote—the greatest reverence is due to children.

In conclusion, those who have the care of children should always be on the look-out for signs of a neurotic constitution; and when found should always bear in mind the child's peculiarities, make due allowances for them, and seek to counteract them.

NOTES.

THE attention of the officers of our Society has lately been concentrated on organisation; corporate work has been temporarily suspended. The Child-Study Society is now established, and energy is set free for doing the work for which the Society exists. Our members are numerous; we have constituent societies in ten centres, from Exeter to Dundee, and the extension of our boundaries will probably proceed rapidly. Let us have suggestions from our members as to the direction in which special work under expert guidance is needed. We ought to have a grand Library, one of the best of the kind in Europe. If every member would present *one* valuable book, our library would soon be a collection worthy of the Society. We should also have our Museum; now is the time to find out what is wanted and to begin to collect. There is work to be done and we have leaders to show us how to do it. Let the next conference at Exeter be a real conference; let us assemble in numbers and get to know each other's plans, untried schemes, ideals, visions, and then let us place ourselves under marching orders and go forward! M. L.

LIBRARY.

Considerable additions have been made to the Library located at the School of Economics, and as soon as the necessary cataloguing has been completed, these will be available to members of all constituent societies.

NOTE.—Members of our constituent societies and of foreign child-study societies, and of organisations akin to our own, are asked to send to the General Secretaries items of news likely to be of interest to readers of this journal.

ANNUAL CONFERENCE.

By invitation of the Exeter Society the Conference will be held in Exeter from April 23rd to 25th. The Conference will be opened on Thursday, April 23rd, at 8 P.M., with a Reception by the Mayor and Mayoress of Exeter, the Sheriff, and Mr. Wippell in the Royal Albert Memorial University College, when an address will be delivered by the President of the Conference, the Rt. Rev. the Lord Bishop of Exeter (Dr. Robertson).

A display of Recreative Drill (flag-drill and skipping) will be given under the direction of F. J. Harvey, Esq.

Lectures will be given on the Friday and Saturday by Mrs. GOMME on "Children's Festivals," Miss SHEDLOCK on "The Educational Value of Fairy Tales, Dr. DAVY on "The Cultivation of High Ideals in the Young," and others.

The Meeting at which the Reports of Secretaries will be taken, and the Council Meeting, will be held on the Friday.

Arrangement will be made for an excursion to Dartmoor and for visits to the Cathedral, Guildhall, Castle, and other places of interest in the City.

Railway tickets to Exeter may be obtained at a reduced rate, on presentation of a special form, which will be sent with the Conference Tickets and the detailed Programme to all those members of constituent societies who intimate to the Hon. Sec. (Mrs. JERMAN) their intention of being present.

Conference Tickets (price 2/6), for others than members of the constituent societies, may be obtained from the Hon. Sec., Mrs. JERMAN, the Bungalow, Exeter.

REVIEWS.

L'Educateur Moderne. October, November, December, 1907, January, February, 1908. (Paulin et Cie., Paris.)

This useful monthly is of particular interest to all concerned both with physical education and the training of the abnormal. A new feature in the January issue is the "Bulletin of Special Education," summarising and discussing the latest developments in this work.

Beyond these its interests are varied: advocacy of instruction in rifle practice, in October; a suggestive article on the education of the voice, in December; and two on the gymnastic training of Japanese children, in December and January.

Of special interest to ourselves, however, is a sympathetic and thoughtful *résumé*, in November, of Dr. Theodate Smith's article on "Obstinacy and Obedience," in the *Pedagogical Seminary* for March, 1905. M. Cousinet is in agreement with Miss Smith's conclusions, and emphasises her suggestion that obedience is to be obtained by a firm and equable control which shall furthermore allow the child to understand the reasons for a command as soon as old enough to do so, and himself insists upon the effect which the system of child-discipline has upon the social response of the adult, and the dangers of unreasoning obedience too long continued.

Note should also be made of an able article in the February issue by M. Abelson on the measurement of intellectual fatigue. This is an account of some interesting results obtained by Dr. Schuyten, of Antwerp, with the æsthesiometer, sufficiently striking to make one wish to see further experiments made in the same direction.

The regular rising of the fatigue curve during the school year, with a marked break at the holidays, is noticeable, and leads to a condemnation of the present school system. T. G. T.

The Child's Mind, its Growth and Training. By W. E. URWICK, M.A. 269 pp. 4*s.* 6*d.* (Edward Arnold.)

Of all books recently published dealing with education, this is one of the most thoughtful and suggestive. Advances made in biology and psychology are held to call for a restatement of educational theory which shall not be dependent upon those of Froebel and Herbart ; thus the treatment is essentially biological and psychological, but clear and untechnical, avoiding needless excursions into these sciences, yet seeking to draw from them all that is of value for a consistent scheme of education, upon which may be based successful practice. Throughout the aim is practical—the interplay of organism and environment, the growth of meaning and percepts, the development of ideas through play, language, and imaginative process, the training of reasoning power, are all treated from the point of view of the teacher. The main thesis of the book may be found in one of its conclusions, "No will is ever influenced except through values, final or immediate, which it either develops for itself out of its own instincts and impulses, or else derives and assimilates from its environment." By careful and logical steps is this made clear ; whatever contributes to growth of mind must also help to cultivation of the will, but learning may be possible through either a higher or a lower process. If, however, the latter is used when the former might and should have been, no real education has taken place ; hence the teacher needs to realise the place of either, and when and how best to use them. In this connection, receptive, expressive, and reproductive imagination are clearly defined ; through receptive process a new thing is learnt, but only by expression does it become clear, and not until it has been reproduced does it become real. The place of reasoning is rightly insisted upon, and the treatment of final and immediate values is provocative of thought. The book is not one for an idle hour ; clear though it is, it calls for careful reading, and will well repay it. T. G. T.

Character-Forming in Schools. By F. H. ELLIS. 235 pp. 3*s.* 6*d.* (Longmans, Green & Co.)

Most educators agree with the Herbartian dictum that the formation of character is the real goal of education, though the extent to which moral training can be affected by moral instruction is a much-discussed question. In any case ideals presented through the medium of historical or fictional narrative have influence in shaping character. This little book includes a series of lessons, based on biographical and literary material, Biblical and secular, and organised around some central idea which is to be presented to the children as the dominant thought for a week. Lessons are given for both younger and older children. All teachers will find the book helpful and suggestive. S. Y.

Les Archives de Psychologie. July, 1907. 3 fr. 75 c. October, 1907. 4 fr. 25 c. (Williams and Norgate.)

Half the July issue is devoted to an inquiry into the phenomena of "speaking in tongues" common to many forms of religious revival, and M. Lombard, the author, upholds the possibility of their psychological classification, independent of the time and place of their occurrence, because of the close affinities between all such manifestations of speech automatism. A lengthy review in this issue gives a clear and exhaustive summary of Professor James' "Pragmatism," this being followed by classified reviews of twenty-six recent works on animal psychology.

In the October number, M. Flournay investigates at length a case of suicide prevented by hallucination, in conjunction with the well-known instance mentioned

by Benvenuto Cellini, and M. Jung gives an account of an investigation into the association of ideas, through the immediate replies to separate words. In such an inquiry, much depends upon the personal reaction of the investigator, for few would classify the replies exactly alike, and upon this classification all the deductions depend; this granted, yet the results were sufficiently suggestive. The most notable of these were that parents show greater similarity of reaction type than non-parents; that there tends to be an agreement in type between fathers and sons, and mothers and daughters, and that, in this regard, marriage has greater effects upon women than upon men.

Mlle. Métral deals with memory for spelling, describing some German, French, and personal tests, and giving as general conclusions that the visual memory is the more important factor in the process, and that whether or not words be spelt in syllables appears to have little effect on power of recall. Much here would depend upon the predominant ideation types among the children examined, whilst, though thoughtfully carried out and clearly explained, dealing as they did with isolated words, these tests leave many problems of the right teaching of spelling untouched.

T. G. T.

The Psychological Clinic, Philadelphia, Pa. Nos. 5–8, vol. i.

In No. 5 there is an article by Isador H. Coriat, M.D., on "Juvenile Delinquency." An account of twenty-one cases based on personal observation is given, with the physical, mental and moral characteristics of each child. The conclusion is that many cases of juvenile crime are accompanied by forms of nervous or mental disorders, *e.g.*, dementia, masked epilepsy, injury or disease of the brain; and that, where there is suspicion of nervous or mental disorder, the young criminal should be medically examined by an alienist or neurologist. In the same number Dr. Lightner Witmer gives an account of an experimental hospital school conducted for a time under the auspices of the University of Pennsylvania. Some children, certified to be backward in the ordinary school work, were kept in the hospital school under the combined treatment of doctors, special nurses and teachers.

In No. 8, Walter S. Cornell, M.D., describes an investigation made in some of the Philadelphia public schools into the relation of physical and mental defects in school children.

S. Y.

The Pedagogical Seminary. December, 1907. Ed. by G. Stanley Hall, Worcester, Mass.

A "Study of Vocabularies" discusses the knowledge of words possessed at different periods from infancy to maturity. A summary is given of work previously done in this direction by other investigators, and the results of class and individual tests made by the writer are described. The relation of sex to vocabulary is dealt with at some length, the conclusion being that up to the fourth or fifth year girls know or use more words than boys, but that these conditions are reversed afterwards.

"The Reform of Juvenile Criminals" describes certain types of youthful delinquency, and gives an account of particular cases, with the results of various forms of treatment.

Another article in this number discusses the culture value of a real sense of humour, and argues that the crude evidences of this essentially human attribute in the average boy or girl is no reason for ignoring its presence, as is done by the average teacher. Rather should the cultivation of humour begin in the schoolroom.

S. Y.

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Child-Study.

The Journal of the Child-Study Society.

HOW TO EXTEND CHILD-STUDY.

By the Rev. J. O. BEVAN, M.A., F.S.A., F.C.P., Chillenden, Dover.

To those who realise the importance of child-study, and desire, therefore, to extend its range, the important questions arise:—"How may this best be done?" "What may be effected by individual effort?" "How far can child-study associations be instrumental in the work?" Different means may be suggested:—

(*a*) The leading of individuals, of themselves, to make a study of the subject.

(*b*) The joining together of teachers, parents, physicians and experts generally, who have already attained to a certain experience.

(*c*) The setting-out of well-planned subjects for debate.

(*d*) The making free use of periodicals devoted to child-study, and of the Press generally.

(*e*) Endeavouring to extend the ramification of any Association to which they belong.

(*f*) The choice of fitting lines of investigation. This is a matter for the expert—not for the hysterical enthusiast, but for the cautious and sober-minded man and woman who may be expected to take a true perspective, so as to guarantee that the principles be duly accentuated, and that these principles be illustrated by experimental research, in order that, in due order and degree, both the science and art of the study may be displayed.

A useful mode of working up an illustrative subject is that which was employed in relation to a Lecture, "On the Fears of Children," which some students had a hand in preparing. In respect of this investigation, preliminary meetings took place of a certain number of members, (forming what they termed a "Circle"), at which papers contributed by children and others were read and discussed, and various conclusions

formulated. To that careful mode of treatment was largely due the animated discussion which followed the delivery of the Lecture to the general body of members.

The necessity is too obvious to be insisted on, of watching the Press, in respect of the issue of both books and periodicals, and of making use of its organs for the dissemination of information; for through this medium our words may become winged. It is, therefore, desirable for any branch to appoint a Literary Committee, the various members of which, respectively, may be briefed to make their colleagues acquainted with publications on the special subject in hand, put forth, not only in this country, but also in the United States or on the Continent of Europe.

The Co-operation of Parents.

It will not have escaped the attention of regular attendants at child-study meetings, that the subject is usually studied from the physician's and teacher's point of view. It must be allowed that children belong, not so much to their parents as to their teachers; otherwise, why were teachers created? It may also be conceded that teachers think that parents are "poor creatures," and, at the best, but necessary evils, and that they look forward to the time when the triumphs of science and the elaboration of machinery will have improved them off the face of the earth! But, taking things as they are, parents are with us; and we must make the best of them. Meetings for parents, and parents only, are by no means advocated. It would be too dreadful—for they would be occupied chiefly with the recital of the remarkable sayings and doings of the Tommies and Elizas—surely the most remarkable children ever born!—of those particular parents who managed to get a hearing; but it is, nevertheless, suggested that opportunities be found for the meeting together of parents and teachers, who should alike be encouraged to speak freely on matters relating to the common interest.

Frequently, public debate and disputation about education have a bad effect in lessening the sense of parental responsibility. This fact is very marked in respect of elementary education, regarding which, there are thousands of parents who would only be too glad to saddle the community and the State with the whole care of their offspring in every particular, material as well as moral. But God forbid that we, as teachers—that is, as standing *in loco parentis*—by any false step should give colour to this doctrine with reference to the children entrusted to our care!

On the Endeavour to Extend the Ramifications of Child-Study Associations.

Lastly, has the limited range our Associations cover ever struck any of our readers? How persistently the teachers outside a few large towns are practically ignored? How few persons are able to attend such gatherings? What a languid interest is felt by those who live and labour outside those large centres, and who, in small towns and country districts, are carrying on educational work under conditions of isolation, monotony, lack of personal interest and consequent heaviness of heart and head; which, as age increases, have most distressing effects, in the drying-up of sympathy, the loss of elasticity and power of initiative, and finally, the complete substitution of the mechanical for that which should be experimental and phantasmagoric.

This indicates the necessity for missionary work. In another sphere, it is truly said:—"A Living Church must be a Missionary Church." But this is true of every agency. We must attain, then, to a firm conviction of the value of our ideals, and then we shall be duly impressed with the necessity of enforcing them upon the teaching community generally. Therefore, we should endeavour to plant out our seedlings, *i.e.*, to inaugurate centres where teachers could conveniently assemble in order to decide upon the subjects they were prepared to study, and the modes of investigation they would find it convenient to carry out in the spheres allotted to them. Matters would be made easier if some well-known person in the district would interest himself, or herself, in the cause, and furnish a meeting-place and simple hospitality. Then, a leader would be requisite—heaven-born, of course, as all leaders should be—with a head—and not a head only, but with a heart as well—a leader to attract as well as to command. A certain course of investigation should be laid down and simultaneously pursued. At the periodical meetings, each member should be expected to make an original contribution to the discussion, and not to be content with a few hesitating remarks, equally banal and obvious, strikingly suggestive of a mental vacuum. Care should be exercised to secure the presence of someone who would be certain to contradict what everybody else said, and to tread on the corns of all the other members; for, of all melancholy things, a meeting in which everybody agrees with everybody else is the most melancholy that could be imagined. At intervals, it might be possible for a large Association to send a representative to such centre, to assure members of help and sympathy, to diffuse light and learning, and, mayhap, to learn something in return.

Progress in this matter must, perforce, be slow at first; the earing time must precede the harvest; but if we provide the momentum by furnishing the initial motive force, the ultimate result cannot fail to justify our hopes and endeavours.

A Scientific Basis.

The advocates of child-study wish to lay down a strictly scientific basis of research and action, so as to induce in us who are teachers that ease and confidence which constitute the sure prelude to happy and successful teaching. It will lead us to grapple (and that successfully) with each child committed to our care, to find out its powers, limitations, idiosyncracies, and confidently to experiment as to these powers. It will help us to find out if we are proceeding on wrong lines, and will suggest a more excellent way. It will instruct us as to the fitness of things, in the provision of literary work for the literary-minded, whilst at the same time not expecting every child to care for letters. It will restrain us from dubbing a child a "dunce" because it does not care to learn and progress in the accepted manner; and, in such cases, will lead us to suggest mechanical work, since literary tasks fail to excite interest. In all this, there resides immense difficulty, but it will constitute an interesting and a healthy exercise for our activities; since, speaking generally, the measure of difficulty in any undertaking is a measure of our reward in its accomplishment.

Conclusion.

There is much to be done—we have to retrace many wandering steps—we have to burn many idols cherished in the past.

To us teachers, the knowledge of Child Life, of the strange world wherein angels and little children live, and wherein they entrench themselves—this knowledge, we say, has to be obtained afresh. Some way or other—as between the adult and the child—there has come to be a great gulf fixed. We teachers may meet to-day in our comity of interests, to join hand-in-hand in a work which makes all nations one; taking to ourselves a new and child-like heart; endeavouring to bridge this all but impassable chasm; and to become again, what once we were, a creation fresh from the hands of the Children's King. Both Pestalozzi and Froebel—we bless their memories as we name their names—took as their motto, "Let us live for our children!" Be it our part to acclaim their rallying cry—to occupy their rallying points.

Children are much to be pitied if they fall into unsympathetic hands,

or if they are placed in positions where they are persistently misunderstood. Their woes are very real; their feeling of pain being so near and acute that it damps, for a time, all pleasure, and causes to fade every gleam of happiness. The evils we acknowledge and deplore in ourselves, as leaders and instructors of the young, are due to want of knowledge rather than to want of heart. Let us, then—who are as gods to those who sit at our feet and listen to our words—let us rightly *learn* that we may rightly *teach;* let us be wise—wise with that sort of wisdom which leads to strength—let us approach the temple of learning, accommodating our footsteps to the halting and restricted pace of the little ones whose hands cling to ours; let us look at the treasures therein contained from the child's point of view; speak of them in the children's language; answer the questions addressed to us in their lisping tongue. Let us not hasten on apace to please ourselves, or satisfy our own ideas of progress; but, making haste slowly, let us stoop to learn the order of development of the budding mind—its rate—its laws divine; let us guard against hasty generalizations; let us separate the apparent from the real; let us stoop in order to lift others up; let us forget ourselves in others, that we may win the remembrance of One Who never forgets His servants or their least word or work. Finally, let us aim at finding our blessing and reward in that blessing and reward we have taught our scholars to desire and deserve!

INTEREST AND THE CHILD.

By H. R. Starke-Jones, B.A.

Lecture delivered before the Halifax Society.—January, 1908.

The most precious thought that has hitherto crystallised in the domain of education is largely due to our friends the physiologists, who are insisting in season and out of season that there is no greater piece of folly than to regard the child as either physically or mentally similar to the adult. Now our physiologists tell us that, as a matter of fact, it would be hard to find many salient factors in which the infant and the adult exactly resemble each other. We cannot, therefore, too soon or too clearly recognise that the child is a living and developing organism. Metaphors are proverbially misleading, but one might say that our fathers viewed their children as so much wax or clay to be moulded into what shape they willed, while we have come to regard children as plants to be tended and watered and placed in the sunshine.

In School Years.

If we accept this view of the nature of the child we must at once throw overboard the idea that school is solely a preparation for life. How is it then that the school period has come to be regarded as a preparation for subsequent life rather than as a part of life? Whence comes this "storage-battery theory, whereby the child stores up at school mental power to use in manhood. The mind of the child refuses to be a storage-battery for manhood; it is rather an organism, that, like a tree, continues to grow, each year being one of real life as well as one of preparation for future life." The fact is that the child can prepare for later life in no other way than by a natural and harmonious development, according to principles that are laws of his own being and not ukases imposed upon him from without. If he becomes a true man —as noble, as able, as useful, as happy, as it is possible for him to become with the gifts that nature has bestowed upon him—it will be because his environment has been such as to allow him to grow naturally to his full vigour under the most favourable circumstances. For some years this principle of dealing with the child as a growing organism has been gaining ground in this country, though it unfortunately still remains true that the immense majority of teachers and of laymen interested in education do not consciously admit the new

standpoint. There is now a strong reaction against the somewhat vigorous methods of the ancient schoolmasters. A very large number of teachers, while still holding by the older curriculum, declare that they are quite willing to admit that lessons ought to be made interesting.

"Amusing" Teachers.

We have in the Society's small library a fascinating little book entitled 'Stimulus,' by Mr. A. Sidgwick. It expresses the view that children should be stimulated to work by making lessons as interesting and amusing as possible. Mr. Sidgwick does not tell us what is meant by "interesting" work; he merely suggests that the teacher may, so to speak, infect the child with the interest that he himself feels in a subject. "Boys are very imitative," he says; "and what the teacher cares for the boys tend to care for too." Now this seems to be nothing more or less than a return to the ancient principle, flouted by Froebel, that the conditions which are suitable for the life of the adult are also suitable for the growing mind of the child. Work may be of great interest to boys later, but it must not be a fictitious interest, due to the teacher's influence alone, for this might result in the development of a child along lines which were not the natural outcome of his physical and intellectual constitution. But if Mr. Sidgwick throws little light on the doctrine of interest he explains very clearly what he means by making lessons amusing. Here are his words: "Do I really mean amusing? Yes, certainly. For instance, I remember being present when a boy, being read out bottom of a grammar paper, said playfully but respectfully, 'I think there must have been some mistake, sir.' To whom the master replied gently, 'I think there must have been a good many.' The form," continues Mr. Sidgwick, "were hugely delighted, and for the rest of the hour worked all the better." Now it is my purpose to raise a strong protest against the adoption of this principle that our children are to be helped to accomplish their work by making it pleasurable. I doubt that the class of which Mr. Sidgwick tells this story did work better during the remainder of the period. It is very difficult to speak on this matter without being misunderstood. You may be inclined to protest indignantly: What! are we to return to the days when our children were driven to work by the slave-driver's lash? Not at all. That was, if anything, a little worse than the method that succeeded it. Occasional flashes of wit harm no one; laughter gives a certain temporary physiological stimulus; clears the brain, as we say, by quickening for the moment the bodily functions; even anecdote, though apt to pall upon the sated palate, may have its hour; but the supposition that the teacher needs laboriously to prepare to be

amusing, that he must be armed with anecdotes to discharge at his class at intervals in the hope that yawns may be stifled, attention recalled, interest revived, arises from the assumption that the occupations of school *must* be tedious. The fertility of resource, the alertness of mind, the brightness of wit, the sympathetic insight into the heart of the child, that Mr. Sidgwick desiderates, are qualities that every great teacher will possess; but even these are powerless to fight against the divided or distracted attention which I shall show to be the inevitable result of the methods by which an attempt is often made to get work done. If the subjects of study were suitable, in every case, to the particular period of growth which the child had reached, there would be no necessity for either force or persuasion; for the child would take a natural interest in the work to be done; and it is the difference between this true, natural interest and the unreal, induced interest which Mr. Sidgwick desires to create that I have now to make plain.

Interesting Work.

What we ordinarily term "work" becomes interesting when the child undertakes it and carries it out voluntarily. The same child who, at the age of ten, refuses in our class-rooms even a listless attention to the distinction between subject, predicate, and object—differentia which, mark you, may themselves become of interest at another stage in his growth—this same child will, if allowed, hurry through his tea, and walk a mile or more on a winter's night to meet his teacher in some playground, there to gaze upon "the dome of the million jewels which is builded nightly above our heads." The same child who brings to us half-a-dozen times the incorrect addition of numbers that are as meaningless and uninteresting to him as hieroglyphics to an oyster, this same child will examine, and classify and tabulate foreign stamps with the greatest accuracy till he is ready to drop. We must notice that these occupations of the child are rightly termed "work." In 'The Crown of Wild Olive,' Ruskin says, "Play is an exertion of body or mind made with no determined end, while work is a thing done with a determined end. You play at cricket, for instance. That may involve great effort; but it amuses you, and it has no result but the amusement. If it were done as a form of exercise ordered for health's sake, it would become work directly."

We may, therefore, have the child interested in attaining a certain end, and voluntarily putting forth great efforts, undergoing considerable strain, denying himself certain pleasures, in order to reach his goal. His efforts are voluntary; no driving is needed, no inducement to work has to be offered; the work interests him.

Compelling and Coaxing.

Now let us examine for a moment the nature of uninteresting work, or, as we generally call it, drudgery. "A workman in a modern factory may spend several hours a day, year in, year out, in producing a piece of iron of a certain shape. Though he may have an interest in the winning of his daily bread by means of the perfect bicycle of which that plate forms a part, it is conceivable that he should have no interest in this dull routine of labour, which would then partake of the nature of pure drudgery. It becomes drudgery to him, *because in its performance he is expressing not himself but another.* And when the child, at school, or at home, is employed by others, with a view either to work or to recreation, in pursuits that are not consonant with the stage of development at which he has arrived, the work becomes drudgery, the amusement harmful. We have spoken of the artisan painfully hammering out his dreary task; we may compare the work of the artist. He speaks of the joy of work, not of its pain. Every stroke of his brush has for him the keenest interest, as he develops the idea that possesses his brain; food and friends are forgotten in the fire of his zeal." De Garmo tells us that Edison becomes so interested in his problems that he will spend hours and even days in total isolation from others, denying himself food and companionship, so intense is the interest with which he pursues his ideal. We see, then, that the child, even as the artist and the electrician, will be interested in his work only when he is, in that work, expressing himself and not another. But we have been accustomed to invite him to produce parts of a machine that we, in our folly, propose to construct. He is not interested in our scheme; he will not, nay he cannot, do what we desire. Then—instead of withdrawing the scheme—we meditate how he is to be made to do what we wish. There are two theories of the means to be adopted to get work done. One theory is that the sheer lift of the will is the only means by which the child can reach his goal, the only way whereby his mind can be trained to do the hard things that are sure to confront him in later life. The other theory is that of which we have been speaking, that of pleasurable excitation. The advocate of effort would drive his pupil to the object to be accomplished, that of pleasure would allure him to it. The one would compel, the other coax.

When either effort alone or pleasure alone is made the motive to action, there necessarily results a divided attention on the part of the pupil. As Dr. Dewey points out—in the case where the child is driven to work there is a certain mechanical attention to the matter in hand sufficient to satisfy the teacher; but there is, accompanying this mechanical attention, a mind-wandering which fights against the cause

of development. The boy may be apparently attending to his lesson, yet at the same time have a running consciousness in his mind of cricket, of fishing, or of whatever other form of amusement may be present to his thoughts. His mind alternates between his interests and the mechanical activity aroused by the teacher's demands. Under these circumstances we cannot be surprised if the results attained are utterly disappointing. But, again, pleasure, too, fails as a means of getting work done, and has the additional disadvantage of relaxing the moral fibre and weakening the power of the will. We have seen that when the student is driven to effort, his attention is divided; when he is lured to work, his attention may be very intense for the time being, but it is not continuous. As soon as the excitation ceases, attention flags, returning at once to the child's proper interests, so that there is in this case a kind of oscillation between excitement and apathy. I used to try the effect on boys who were beginning the study of French of a bag of chocolates. I wanted them to talk about the bag and its contents; but I found that, while the chocolates were satisfactorily absorbed, the French was not. My black kitten also created considerable interest, but the interest was not transferred to the French.

I have known attempts to stimulate work by means of pleasure produce an excitement that was sufficiently strong to distract the attention of the class to the matter in hand for the rest of the period. The class had been studying the principles upon which punctuation depends; and, thinking to increase their interest in the subject, I asked them how they would punctuate "Maud with her bag in her hand has gone into the garden." Various solutions were offered. Then came mine. I should make a dash after "Maud," and a full stop when I got to "the garden." The class enjoyed the joke hugely, but they never recovered during that period; every now and again one boy would catch the eye of another, and the jest would ripple again on the surface of the pool.

To sum up, if you use force, the child's real interests fight against you simultaneously; if you employ lures, the child's own interests resume their sway directly the bait loses its freshness. Either event would seem to cry aloud the wisdom of trying to understand in what the child is interested, and of taking advantage of the enormous effort of which he is capable when allowed to work in the field of his interests.

The Ideal of Teaching.

I consider it both possible and imperative to base the entire curriculum of every school upon these two principles, the principle of interest, and Froebel's principle that the child is not a fixed but a

developing form. At every stage of its growth the child must be occupied in work that it desires to do, work that is interesting to it at that stage. Experiments are being continually made in deferring the study of certain subjects—Arithmetic, French, Latin, Greek, Grammar, Reading, Writing and others—to a period much later than customary, with the result that the students are found, before leaving school, actually in advance of the ordinary student who began the subject at an earlier age. In constructing our new curriculum our greatest difficulty will be, as it has always been in the history of the human race, the *vis inertiæ* of existing curricula, existing examining bodies, existing institutions, and the ancient universities, which are very slow to move. We shall need a profound knowledge of the child's mind in all its stages of development; and a complete disregard of the number of facts that the child is able to produce, upon being questioned, by a sort of automatic or reflex action; we shall need further to set a far higher value upon that acquirement of skill, power or ability, which cannot be tested or judged by our present methods of examination, but which the parents and teachers see clearly in the face of the child as it expands and brightens like a beautiful flower. For I believe that, though it would be contradicting physiological science to say that ability can be absolutely created, we do by our present system actually destroy ability, lowering the average intellectual force of our race to a really enormous extent.

Time Wasted on Grammar.

I have not the time, even if I had the ability, to map out a complete scheme of work for children, from their earliest years to the time when their education passes from the hands of their parents and teachers into their own control. All that I can do is to indicate one or two points where we seem to me to go astray, leaving it to be premised that these are merely illustrations of the doctrine that is being enforced. Seeing that I do not find, as a rule, that the interests of children are strangled between the ages of five and eight or nine, I propose therefore to deal very rapidly with the period that follows.

I go, we will suppose, at nine o'clock in the morning into my class of boys of age varying from nine to eleven years. Each looks as bright as the Morning Star—twenty years ago "Mischievous as Lucifer" would have been the astronomical metaphor. I grieve to be obliged to obscure the brilliance of my Morning Stars, but as even the very latest constructor of curricula, the Professor of Education at the University of Manchester, sympathetically as he deals with the teaching of the great educationists of both the German and the American schools, prescribes English Grammar as a subject of study for boys of this age, I announce

that we intend to plunge forthwith into the mysteries of this delightful subject. A slight mist passes over the celestial firmament; there is a momentary occultation of the Morning Stars; then, without unkind reference to my unfortunate allusion to the sterile plains of grammar, they proceed to cross-examine their not unwilling teacher upon the position of Jupiter on the previous night, the possibility of seeing his moons with the naked eye—a feat which their imagination is quite capable of performing—the vagaries of the fickle moon, the character of Cassiopeia, and the reasons why, even in the sky, her husband, Cepheus, and her daughter, Andromeda, are tied so tightly to her apron-string. These details having been disposed of, grammar is gently but remorselessly led back; and the teacher, summoning to his aid every Muse invoked since time began, exhausts upon it all his ingenuity. He makes the distinction between subject and predicate and object clear, even to the extent of allowing the subject—boy—to punch the object—teacher. But it is all in vain; interest is dead, a lifeless corse, impossible to animate; and in a while the master is obliged to say, "Philip, you are not really following all this, are you?" Whereupon there comes the ingenuous reply, "Well, sir, I cannot stop thinking of something I want to ask you. I saw a bird yesterday; it was all black and about the size of two sparrows rolled into one; but it hadn't a yellow bill; so it couldn't be a blackbird, could it?" Thus hath the subject blackbird defeated the object of the teacher. So we promptly apply the doctrine of interest, and English Grammar, French Grammar, Latin Grammar, disappear from the curriculum of boys of this age.

Why was grammar ever introduced? It was made a part of school work by those who believed that one learns to express oneself by pulling sentences to pieces and then re-combining the constituent words. The truth is that our sentences leap from our brains, as Pallas Athene from the head of Zeus, whole and complete. Who can express his thoughts with even moderate speed and correctness in German or French by the synthetic process? "Penchez-vous lentement en avant, jusqu'à ce que vous puissiez saisir la corde." Is it not evident that each of the two sentences of which this is compounded exists more or less ready-made in the brain? Does the great classical scholar construct his sentences word by word? Certainly not. His mind is full of noble verses from Greek epic, lyric or drama; he will chant you by scores the rolling hexameters of Virgil, the sonorous elegiacs of Ovid. His memory holds hundreds of graceful phrases, forceful expressions, ready to leap at need to the tip of their master's tongue. Was it by parsing and analysis that Shakespere and Bunyan and Keats and Goldsmith and Boswell and Thackeray and Defoe and Bright and Huxley and Stevenson and Jane

Austen and Charlotte Brontë—no one of whom owed anything to the classical tradition—learned the secret of their noble prose? No. Grammar must be relegated to a latter age and reduced to a minimum; and the time thus gained spent by the child in the unhurried, loving, fruitful study of the great books that are his imperishable heritage from his forbears.

The Land of Enchantment.

Thus much of what he should not do; a few words as to what he should do. When at about the age of seven or eight years, fairy stories and folklore begin to lose for the child their preponderating interest, the rapid growth of the critical spirit gradually changes the centre of interest from the marvellous to the adventurous. The child is from first to last a human being; his supreme interest is in his kind, in his race, and in its destiny. And if he is to become other than a mere automaton—the one basal necessity is the preservation of this interest. The child's mind must be filled full of the miracle of existence, must grow more and more absorbed in the mystery and wonder of man, in the glory and beauty of his planet home. Once let his mind be awakened to the splendour and the mystery of this strange adventure of life on which for a little space we are embarked, and he will find something better to make of his life than to provide for his physical needs and then fling away on child's play (more or less disguised) whatever residue of time may be left. This is the message our seers have ever sung to us, and our presence here to-night is a sign that we would no longer have our poets beat with bruised wings against the barred windows of our souls. Long enough have we regarded the poet as a dreamer of dreams. But it has been well said that the poets live the truest and most real life, and speak the most natural language. It is we who are unpractical—we with our broken sentences and our half-formed ideas, we who fail to realise that behind the business of the mart and the pleasure of the circus there lies a land of beauty and delight. And it is this Land of Enchantment into which our children are born, this enchanted land where they wander early, with fingers still entwined in their mother's gown; this land that we would not they should ever quit.

History and Literature.

Let us apply this principle constructively to the curriculum made for the child of whom we are speaking. How should he be occupied? Broadly, he should be learning the history of the human race and becoming acquainted with the planet whose physical constitution and varied life have conditioned man's adventurous existence.

"First of all, he should be listening to the story of the race. He might begin at both ends. From the point of view of primitive man 'the process should resemble the gradual withdrawal of a curtain and the disclosure step by step of a splendid and moving spectacle.' Meanwhile, from the standpoint of the present, the river of history should be traced up stream; the child should be made to feel how it touches his daily life." And, here, as the child traces up stream the river of history, is a splendid opportunity of replacing sensation and idea by action. I know from experience that boys delight in dramatising the story. They will conduct elections, make speeches, sign nomination papers, count votes with avidity. They will hold sittings of Parliament and legislate for their form with great seriousness. They delight to reproduce the ceremonial of Petty and Quarter Sessions and of the Assizes. I have even seen the prisoner at the bar solemnly executed on a block in the gymnasium for no greater crime than leaving the wickets in the playground—but this was an unauthorised addition to the formal programme.

Hand in hand with history will go literature. The child will begin by reading, in Kingsley's 'Heroes,' or Hawthorne's 'Tanglewood Tales,' or 'Beowulf,' the myths of the ancient world, especially the legends of Greece and the Sagas of the North. He will pass to the story of the childhood of the world, so well told in Hall's 'Days before History,' or 'A Cave Boy.' He will read in Lamb's 'Tales from the Greek' or his 'Ulysses' the everlasting tale of Troy. He will learn from the Bible that most fascinating of all stories—how the Hebrew boy became the second man in that mighty empire whose matchless monuments sleep still beside the waters of the Nile. Thus will he be steeped in the details without which history is a lifeless form.

Romance of Nature and Man.

We come next to Science—the study of man's environment. This began in the Nature Study and the Geography of the previous stage. I must say one word about Geography. The child has, in his previous stage, with pencil and brush and clay and sand, learned to represent his surroundings. He has even passed beyond the borders of his own country, and is asking himself what lies there, far away to north, beneath the Little Bear that swings by his tail from the Polar Star, far away towards the rising and setting sun, far away where Sirius nightly blazes in the south. Here, too, you may begin at both ends. He will want to know of his fatherland. But beware how you dull his interest. I can imagine nothing more flat, stale, and unprofitable than the learning by rote of such facts as are dear to the heart of examiners—even yet.

And, starting at the other end, we shall tell our child the story of the fiery birth of the world, of the slow cooling of the swaying crust, of the gathering of the waters, of the fierce beating upon the naked bosom of our mother earth of such tempests as she no longer dreams of; we shall speak of the sculpturing of hill and the carving of dale, of the march and retreat of the glacier, of the flow and set of the lava. The child will listen with breathless interest to the story of the evolution of life, of the strange forms of early animals, of the struggles of man with famine and flood, fire and frost, of his wanderings over the face of his mother earth. And as the panorama rolls, every line of march, every halting-place, every battle-ground, will be graven indelibly in the child's memory by the intense interest of the moving tale.

We shall be at once struck by the fact that our Geography and our History, our Literature and our Nature Study are but different aspects of the same phenomenon—the romance of nature and the romance of man.

The Doctrine of Interest.

Some arithmetic, too, we can very well do at this stage; the measurements that we made for our map studies in the previous stage are only one example of actions that insensibly draw the child into the desire to calculate. For interest begets interest; at the proper moment there arrives the wish to know and to do, transforming into delight what else would have been drudgery. But again let us beware. None of your huge additions, subtractions and multiplications. There is but one arithmetical rule for us—simple interest, and that will speedily lead to compound interest.

I commend to you the doctrine of interest. It will, I believe, have many happy results. At the end of his school course, the boy will have a far wider and more vital knowledge than to-day. This knowledge will have been so gained as to form an integral part of the child's mind, not only resulting in that broad outlook upon life which is the real culture, and which may be found in many men who are unable to manipulate Greek verses, but also giving to the child just that power of dealing with the actual life he has to live that the average boy has so conspicuously lacked in the past. The boy will leave school with a real interest in the romance of life and the fascination of his surroundings—a fascination many of us, alas! have never been trained to feel—an interest which will make life worth living. And last—but, oh! is it least?—the school life of the child will have been happy.

THE CULTIVATION OF THE MIND IN CHILDREN.

By H. DAVY, M.D., F.R.C.P., President, British Medical Association.

Delivered before the Exeter Conference, April 24, 1908.

When I was asked to read a paper before this Conference I chose "The Cultivation of the Mind in Children" because I thought it a good subject for the interchange of views between members of the Conference.

We must not think that mental activity depends entirely on the brain. We know as a physiological fact that every mental action is accompanied by a development of nerve force generated in the nerve cells of the brain, and we know that each generation of nerve force uses up a certain amount of healthy blood, and gives rise to a certain amount of effete material. This healthy blood has to be supplied from the food we eat and the air we breathe, which necessitates the healthy action of the lungs and the organs of digestion, and that these organs shall be supplied with a proper amount of fresh air and suitable nourishment, while the effete materials have to be eliminated by the excretory organs of the body.

So that a high state of mental activity demands that all the organs of the body be healthy and properly nourished. I doubt very much if this is sufficiently recognised by those who are responsible for the care and education of the young. It is essential that children should have fresh air, proper food, and adequate muscular exercise (by preference in the form of games) if their minds are to be properly cultivated and healthily developed.

Another mistake which is, I think, too often made is that, when discussing the cultivation of the mind, too much stress is laid on the mere acquisition of knowledge. Someone started the dictum that "Knowledge is Power," and there are many people who seem to think that all that is necessary to the cultivation of a child's mind is to cram it with knowledge of all sorts and kinds. "Knowledge," said the late Dr. Moxon, "is simply fuel for the mind, very excellent, no doubt, and just as useful as coal is to a fire, but just as you may put out a fire by putting on too much coal, so you may smother your mind by heaping

on too much knowledge, so that your mind becomes more comparable to a coal-scuttle than a fire."

The true aim in the "Cultivation of the Mind" is the organisation of knowledge, the mastery of it—what the old Reformers termed the digestion of it. You will see this by reading the Collect for the Second Sunday in Advent, which appeared in the First Prayer-book of Edward VI., about 1549, and which is believed to have been written by Cranmer. "Blessed Lord, who hast caused all Holy Scriptures to be written for our learning, grant that we may in such wise hear them, read, mark, learn and inwardly digest them. . . ." How well do these words illustrate the way we should use the knowledge which we acquire. Cranmer himself could hardly have understood those words to be as full of meaning as we can. We know now that food, having undergone digestion, actually enters into the life and constitution of all our organs. And in like manner knowledge which has been digested should actually form part of our mental life and enter as a factor into all our decisions and assist in all our judgments and thoughts.

We shall see how truly the words of the collect describe the best form of mental culture by a study of a concrete example. Let us suppose that we wish to study Gothic architecture.

We find then that the keynote of accumulating knowledge is to be constantly learning and relearning it, and unless we are constantly doing this it will fade out of our mental life.

But after you have accumulated your knowledge of Gothic architecture it may be of little use as a factor of mental culture. Like so much of the other knowledge which is gained in life, it will only enable us to shew off our fancied superiority over some friend who has not got the same amount of fragmentary erudition. Our knowledge of Gothic architecture assists in a real cultivation of the mind when we ask ourselves what was in the minds of the architects who designed it and in the minds of the workmen who carried out the work—when we come to ask ourselves the meaning of the lines and mouldings, pillars and arches. Study Ruskin's "Stones of Venice" or his "Seven Lamps of Architecture," and you will see how architecture may be read, and how in a building some points will shew out "Truth, Power and Freedom," whilst others will only indicate over-development, imitation and decrepitude.

You will see that the most beautiful is the most powerful and the most truthful, and so from Gothic architecture you may cultivate your mind in the same way as by the study of a well-written book, and through its agency the "Ideal of Life" may be broadened, beautified, and elevated.

I have used the term "Ideal of Life," and I would ask you to discuss what part "ideals" take in the cultivation of the mind, especially of children. "Ideals" have been defined as something which forms the ruling thought, the main desire of everyone's life, the following after which will usually decide the line of action which the man will take in passing through life. If this be true a child's character will be formed by the "ideals" which are impressed on him; and the "cultivation of a child's mind" depends very much on these "ideals."

Professor Shairp in his lecture on culture and religion seems to take very much this view. In one passage he tells us "Men in the last resort are not formed by rules or precepts, no, nor by what are called moral principles. Men's lives and characters are determined mainly by their Ideal; by the thing they lay to heart and live by, often without themselves being aware of it, by that which in their inmost souls they love, desire and aim at, as the best possibility for themselves and others. By the Ideal therefore that a man loves and by his persistency in cleaving to it and working for it shall you know what he really is."

Much the same view was held by the late Thomas Carlyle, only he uses the word "religion" instead of "ideal." In one of the passages in his book on "Heroes and Hero Worship," he writes: "It is well said in every sense that a man's religion is the chief fact with regard to him. A man or a nation of men. By religion I do not mean the church creed which he professes, the articles of faith which he will sign, and, in words or otherwise, assert; not this wholly, and in many cases not this at all. We see men of all kinds of professed creeds attain to almost all degrees of worth or of worthlessness under each or any of them. This is not what I call religion, this profession and assertion. But the thing which a man does practically believe (and this is often enough without asserting it even to himself, much less to others), the thing which a man does practically lay to heart and know for certain concerning his vital relations to this mysterious Universe, and his duty and destiny there that is in all cases the primary thing for him, and creatively determines all the rest."

Now, if the cultivation or formation of ideals does take such an important place in the cultivation of the mind in children we shall have to take the same course in acquiring "Ideals" as we have seen that we take in acquiring ordinary knowledge and fixing it in our minds.

We shall have to read, mark, learn and inwardly digest the "Ideals" we wish to form; and we shall have to make our children form their "Ideals" in the same way, by constantly presenting to them under different aspects the "Ideal" we want them to follow, and allowing it, if I may say so, to soak into their minds without visible effort.

It will be well then to consider some ways in which these Ideals are best impressed on the minds of children. And before everything else I would place the influence of the true-hearted, high-principled mother who lives with and for her children from infancy upwards. Not only will her influence form habits of self-control and unselfishness even in infancy, but the whole tone of their "ideals" through life will be due to her teachings. You can find what I mean fully illustrated in such a book as "Little Lord Fauntleroy," where the mother's influence and care are fully described and set out, and you will not anywhere get a much better ideal to set before children than is contained in her advice to her small son: "Oh, Ceddie, dear, I wish for your sake I was very clever and could say a great many things. But only be good, dear, only be brave, only be kind and true always, and then you will never hurt anyone as long as you live and you may help many, and the big world may be better because my little child was born. And that is the best of all, Ceddie, it is better than anything else, that the world should be a little better because a man has lived even ever so little better."

And in attempting to form Ideals it is necessary to remember that a *tendency to imitation* seems to be one of the most potent tendencies in the human mind, and if we take this tendency into account, together with the tendency to "Hero Worship," we shall understand more thoroughly how Ideals in Children may be influenced.

For the "tendency to imitation" may well explain how potent is the force of example in the formation of Ideals. If a child sees anyone whom he would be proud to be like, he will try to imitate him as far as possible, and how often he does do so anyone accustomed to school life could tell. In much the same way if he reads of a heroic character he will try to follow it out, he will form his "ideal" from what he knows of his Hero and will try and imitate him in his own life.

It is therefore necessary to choose children's literature having in view the "ideals" we wish them to form from their reading. And in choosing these books for them we must put before them books which they will like to read and re-read, for no book will help in the formation of ideals unless it answers to Ruskin's requirement, "No book is worth anything which is not worth much, nor is it serviceable until it has been read and re-read and loved and loved again, and marked so that you can refer to the passage you want in it as a soldier can seize the weapon he needs in an armoury."

We should teach our children much more than we do the lives of great men who have made history. History as it is so often taught at present has little or no effect in forming "ideals." The dates of the accession of the kings of England, with a fragmentary knowledge of the

chief battles and acts of their reigns, will do very little beyond improving the learner's memory. But teach them the history of the great men of their nation, of the deeds which have won the empire and the lives of the men who helped to win it, and you are setting before them "ideals" which will bear fruit, and which will be useful to them and to their country. If we wish our children to be great, surely we should put before them the lives of the great men as examples for their imitation, and try to form their "ideals" on these models. The Japanese give us a practical proof that it is possible to form on a large scale "ideals" in children by introducing these "ideals" into their system of education. Children in Japan are from early infancy taught the love and respect which they owe to their parents; each child is taught the lives of the great men who have done much for their country, and these ancestors are held up to them as examples to be followed. As a consequence, the "ideal" of the Japanese is respect for their parents and ancestors, and a spirit of patriotism which is most useful to them in their national life.

I hope I have said enough to shew how greatly the character of a man depends on his Ideals, and how important it is to cultivate these in childhood. We must recognise that these "ideals" will vary through life with the conditions of the man at a given time, with the varying knowledge that he has accumulated, and with the environment with which he finds himself surrounded. But the Ideals of his childhood will remain with him more permanently than any others, and will last when those which have been later accumulated have passed away.

This permanence of the Ideals of childhood is so well recognised that

The Child is father of the Man

has passed into a proverb, and if we wish to make any impression on "ideals" of a nation it must be done in the schools of the country, and in the early years of the children.

A good mother will have taught her child the rudiments of obedience and self-control at a very early period of its existence, and the lessons thus impressed on it in infancy will deepen each year, until an Ideal of obedience, self-control and usefulness is formed which will remain a more or less permanent Ideal for life.

CONSTITUTIONAL DEVELOPMENT AND SOCIAL PROGRESS OF BOYS AND GIRLS FROM INFANCY.

By FRANCIS WARNER, M.D. Lond., F.R.C.P., Senior Physician to the London Hospital.

Delivered before the Child-Study Society, London, December 12, 1907.

I want to put before you certain facts concerning the life history of boys and girls, showing their physical, mental, and moral progress from infancy upwards, and the great differences observable between the sexes. I shall avoid any attempt at statistical analysis, though a few figures will be quoted from public records and from reports on the physical and mental conditions of children, in support of my statements and conclusions.[1]

The Census Report of 1905 gives the number of births as 472,886 males and 456,407 females, showing a larger number of boys than girls born. It is our object to learn what becomes of these infants in advancing life. Many die in the first year, and as many as 25·16 per cent. die before they are five years old, for we find that of 1,000,000 males and 1,000,000 females born there survive at the age of five years 734,068 males and 762,622 females. Furthermore, this heavy infant mortality carries off a much larger proportion of boys than girls. Referring again to the Census of 1905, we find 51 per cent. of the births were boys, while of the 5-year old children only 43·3 per cent. were boys. Thus we have a larger number of girls than boys to be educated, and this numerical inequality between the sexes is maintained throughout life, and has important bearings on many social and political matters.

I shall pass over the consideration of the common diseases which very largely account for deaths at this early age, because I want specially to direct your attention to the importance of congenital defect in this heavy and unequal mortality of infant boys and girls. For it is my conviction that these congenital developmental defects predispose to early death, or if the child survives to school age, to bodily and brain weakness.

[1] Report of a Committee of the British Medical Association, 1893. Published at Parkes Museum.

The Registrar-General draws attention to this question, and says (Report, 1893. Eng. p. xvi.): "Developmental diseases accounted in the aggregate for 47,359 deaths, or 1,593 in a million persons living. As was mentioned in the last Report, the mortality from premature birth and congenital defects has shown in recent years a constant tendency to increase. The mortality in 1893 from premature birth was equal to 18·88, and that from congenital defects to 3·90 per 1,000 children born, showing a still further increase on the high rates prevailing in recent years."

It has, however, been just stated that congenital defect, besides being a considerable factor in infant mortality, usually predisposes to bodily and mental weakness in those that survive. Clinical experience shows that a large proportion of "delicate children" are defective in development, the number of boys being larger than that of the girls, but the latter being of lower vitality.[1] In the children's medical wards of the London Hospital, where boys and girls up to six years of age are admitted, very few are of a normal standard in development, most of them being small-headed. The majority come under treatment for marasmus, lung diseases, etc. In one of these wards last year there were admitted 265 boys and 228 girls, practically all subnormal in development. Of the boys, 67 died, and of the girls 65, representing a percentage mortality of 25 and 30 respectively. Thus there were more boys ill, but the mortality was higher among the girls. While, as has already been pointed out, the total infant mortality of the nation is higher for boys than for girls, coupled with these facts is the further very significant one that congenital defects are much more common among boys than among girls. Thus it would seem that defect predisposes to disease in both boys and girls, but that such girls have less power of resistance to disease than the boys in similar conditions, and hence the higher mortality for girls than boys in the children's medical wards, where practically all are in some respect defective.

We will now consider the children of school age. I will state a proposition, and not trouble you with any statistical statement of the detailed observations upon which the evidence is founded; it has been published elsewhere.[2] "Girls with any degree of developmental defect or brain disorder are more apt to receive harm, and less good, from their environment than boys." Children with any degree of subnormal development are more frequent among boys; but girls of this type tend to acquire brain disorderliness, ill-health and mental dulness in larger proportions than the boys of the same status. On the other

[1] "The Study of Children." Author, Macmillan & Co. Tables VII. and VIII.
[2] "Study of Children," Chapter XIII.

hand, among normal children there are fewer dull girls than dull boys, and not more delicate girls than boys. It is the girl who has some defect that is delicate, not all girls. Good health and strength are quite as frequent among normal girls as among normal boys, but the girl who is in some degree subnormal suffers for it more than the boy in like case.

Thus in a High School, for example, I think the well-made girls may work hard at lessons, and in the gymnasium, playing vigorous games with advantage, but on an average there are about 7 per cent. of the girls with some degree of subnormal development. These should be known to the mistress and specially watched, for under mental and physical stress they tend to low nutrition, anæmia, insomnia, leading on to neurosis and hysteria.

Thus we see that well-developed girls up to school age, and during that period, are not the weaker sex, but when defective are much more prone to permanent ill-health.

Let us now consider briefly these 7 per cent. of the girls, and 9 per cent. of the boys who, I said, had some degree of subnormal development.[1] In dealing with such children, throughout the early years careful attention to mental and physical hygiene can do much to preserve life, and to overcome or prevent ill-health, neurosis, and other causes of social failure. A fuller knowledge of the conditions of boys and girls would make it possible to detect early the tendencies resulting from their status at birth, and guide us in their care and training. With due care and right training and education such children may well be expected to develop into good citizens. But failing this care and right training, social failure only too often results.

This matter of defectiveness is involved in many social problems, and throughout we find the inequality between the males and females. Thus insanity may be slightly more frequent among the males, but the proportion of chronic cases is higher among females. The judicial statistics show that criminals of the male sex are far more common than females, but "criminals convicted ten times and over" are twice as frequent among females. Among criminal lunatics, murder, as apart from infanticide, is much more common among females. It appears that female brains, whether mentally dull, lunatic, or criminal, are more apt to remain disorderly than male brains. This shows the importance of good training, and the probable evil results that follow from the too frequent irregular attendance of girls at school.

Illiterate adults, i.e., those who cannot sign the marriage register,

[1] For points indicating subnormal development see "Study of Children," Chapter VI.

have decreased in number, both for men and women; the women still preponderate, but the disproportion is lessening. This is an illustration of what is often seen, that a well-directed effort for social improvement in one direction produces good results in directions not anticipated. No doubt this improvement has been one of the results of continuous general educational effort. I think it is possible that the systematic training of children will also tend to lessen nervous diseases, insanity, epilepsy, and mental degeneracy.

The question of longevity is intimately connected with our present subject. The greater survival of the girls in infancy I have attributed in part to the fact of the smaller proportion with defective development; the results in adult life are of social and economic importance. The subjects of lunacy, insanity, and criminality have already been touched on. Turning now to the Poor Law returns, we find that among indoor and outdoor pauper adults, excluding vagrants, there is a much larger proportion of women than men. This again is connected with the fact that there are more widows than widowers. If the developmental conditions of infants were improved, there might be a lowered infant mortality and less discrepancy between the sexes, leading to fewer widows and paupers. Thus if we could diminish the number of children born with subnormal development, the average duration of life in men and women would be more equal. Meanwhile, as things are now, old age pensions are more costly for women than for men, because they live longer. At the age of sixty years £1,000 will purchase a male annuity of £87, while the same sum will procure for a lady of the same age only £78 6*s*. 8*d*. a year. Again, if the parliamentary vote is given under present conditions to all men and women, the female voters will largely predominate.

Finally, as to the causation of the large proportion of children born with some degree of subnormal development, we need much more knowledge. It seems that when variations in development are occurring in a family, and some members rise above the average in mental power to the point of genius, one or more members is often subnormal or defective. Many family histories have been written showing the inheritance of genius, and others showing the propagation of mental weakness, with ancestors also decadent or morally defective. But a scientific enquiry as to the causation of congenital defect, and the outcome of subnormal development, must be concerned with an analysis of vital statistics as to mortality, and the conditions of childhood in various places. The results should certainly be arranged separately for males and females.

In dealing with many problems as to mental failure or mortality, I have made it a rule to enquire first as to the proportional distribution

of the condition under investigation, between males and females. I was asked by a Parliamentary Committee if any explanation could be given as to the high mortality in Irish Certified and Industrial Schools.[1] It was pointed out that the death-rate among these boys was 11·1 per 1,000 as against 2·5 in English schools. When visiting these schools I found the number of boys with some subnormal development exceptionally large, being 32 per cent., but only 18·4 per cent. among the girls. It seemed, then, that as almost a third of the boys in these schools had some constitutional defect, their vital power was lower.[2] These facts may perhaps serve to illustrate the social value of recording separately observations on boys and girls, men and women.

Some of the statements that have been made are capable of modification, refutation, or confirmation by careful statistical evidence showing for a series of years and for various districts the relations of "congenital defect and premature birth" to male and female mortality at successive ages and in various districts. Such an investigation would, I think, throw light on some causes of infant mortality and defective development other than the all-important matter of infant feeding and general hygienic care. It seems very desirable that such an investigation should be undertaken.

[1] Parliamentary Committee on Industrial Schools, 1896. See Evidence.

[2] Journal of Royal Statistical Society, March, 1893, and Report of a Committee of the British Association on Children, 1895.

EXETER CONFERENCE.

ADDRESS.

By The Rt. Rev. A. ROBERTSON, D.D., Lord Bishop of Exeter, President of the Society.

The Bishop of Exeter, as President of the Conference, expressed his great interest in the Society, and wished it a long, prosperous, and useful career. As to the value and importance of child-study, there could be no question. Of all the definitions of education, the best he thought was that which spoke of it as the training of faculty. The greatest faculty of all was the faculty of life, and no conception of education was adequate to the bringing out of the child into the highest of which manhood or womanhood was capable, which lost sight of the ideal of education as the training of the great comprehensive faculty of life; not how to get on in life, or pursue this or that particular walk in life, but how to live so that the exercise of mental, moral, and physical powers might contribute their best to the happiness of the individual and of the society of which he was a part. That was the goal of education. Child-study was very easy to discuss, but very difficult to carry into effect without destroying the very object which they aimed at. Any direct study of children must be a study of them as they naturally were, and not of children self-conscious and aware of being under observation. With regard to the child-mind, he would be the last to dispute the importance of psychological studies with a view to application in practical education, or the possibility of turning them to profitable account in the schoolroom, but at the same time, he could not help thinking there had, perhaps, been too great an intrusion of theory into this matter, and there was danger of losing, by arousing self-consciousness in the child, the very thing of which they were in search. What they wanted was a little more recognition of induction, and a little less importance attached to what was theoretical and deductive. As practical students of child-life, there had been no class of more value, or who had done more for the subject than the teachers in elementary schools, and he should be sorry if the trend of educational administration should prove, in the long run, to have weakened the contact of the teacher with the child. As to the physical

capacities of the children, it defeated the whole purpose for which they were working to expose the boy or girl to physical strain of an excessive kind. Therefore, he was not sure that boys and girls of approximately the same age should be put in competition in the same class; for they were in danger of sacrificing their future health to the fetish of examinational tests. He did not think it was good for the child to be made a little controversialist. The simple religious ideas of which children were capable could only be imparted in a way suitable to the capacity of the child if the form of teaching was made as dogmatic as possible. Let them see to it, then, that what they taught their children was simple, elementary and fundamental, but taught in such a way that there could be no mistake about it.

THE attendance of members and friends at the meetings of the Conference varied from eighty at the meeting when the reports of Constituent Societies were read to over 200 at the address by the Right Rev. the Lord Bishop of Exeter.

Representatives attended the Conference from the following Constituent Societies: Birmingham, Cheltenham, Dundee, Edinburgh, Exeter, London, Manchester, and West Kent.

Lectures were given by H. Davy, M.D., F.R.C.P., on "The Cultivation of High Ideals in the Young," Mrs. Gomme on "Children's Festivals," Miss Shedlock on "The Educational Value of Fairy Tales," and a discussion on "Games and Recreation for Children" was opened by A. Beresford Kingsford, M.R.C.S., D.P.H.; and a display of Recreative Drill was given under the direction of F. J. Harvey, Esq.

The members were hospitably entertained by His Worship the Mayor, the Mayoress, the Sheriff and Mrs. Whippell, who received the members at a conversazione in the Royal Albert Memorial College; by the President (Dr. E. J. Domville, J. P.) and Committee of the Exeter Society at lunch at the College Hostel; by Principal Claydon at tea in the Royal Albert Memorial College, and by many others who extended private hospitality to the members.

Visits were made to the Cathedral, Guildhall and other places of interest. Mr. and Mrs. Jerman arranged to entertain the members on Dartmoor, but the severe weather did not allow of the excursion taking place.

At the closing meeting, votes of thanks were accorded to those who had so hospitably entertained the members, to the Exeter Society, Dr. Domville the President, and Mrs. Jerman the Secretary, for the arrangements made for the Conference which had culminated in such a successful meeting. It was announced that the next conference would be held in Manchester in 1909.

The following officers were elected for 1908:—

President—The Right Rev. the Lord Bishop of Exeter.
Chairman—Sir Edward Brabrook, C.B.
Vice-Chairman—The Hon. Sir John Cockburn, K.C.M.G., M.D.
Treasurer—Miss Mary Louch.
Hon. Gen. Secretaries—Miss Mary Louch: Mr. W. J. Durrie Mulford.

ABSTRACTS OF REPORTS OF THE SOCIETY, AND OF THE CONSTITUENT CHILD-STUDY SOCIETIES READ AT THE EXETER CONFERENCE.

The Child-Study Society.—The first meeting of delegates forming the Council took place in July, 1907. The officers for the year were elected and committees appointed for:

1. Drawing up a constitution;
2. Arranging for new Journal;
3. Extending the work of the Society.

A new society had been formed at Halifax. There were now ten constituent societies with a total membership of about 1200.

Birmingham.—Six ordinary meetings were held, at one of which was a symposium of papers based on essays written by children on "The Attitude of the Child towards the Prospect of leaving school"; and a course of lectures on "The Art of Telling Stories to Children," which was so successful that the course had to be repeated.

Cheltenham.—Four lectures, all well attended; 140 members.

Dundee.—Six lectures were arranged, at which there were attendances of 200 student teachers who were interested in the work.

Edinburgh.—Practical work done by the collation of 1,400 answers from children, aged from 7 to 13, to questionnaire designed to test the familiarity of children with notable historic and natural features in their environment.

Exeter.—Six lectures were given, four reading circles were established. The membership was just over 100. The subscription includes "Child-Study."

Halifax.—Twelve lectures were given, five of which were open to the public. The membership was about 170. A list of 43 books suitable for members was circulated. A scheme was suggested for supplementary sectional meetings to be held in nine selected school centres, with a view to interesting parents of children attending schools within those areas. Programme of subjects discussed to be drawn up by the lady Health Inspector, Medical School Officer and School Teachers; and the meetings to be conducted by Head Teachers of Schools and local medical men. Sectional Branch-Secretaries and small local committees to be appointed where necessary.

Liverpool.—No report.

London.—The membership was 290; the subscription was arranged to include "Child-Study." Eight lectures were given during the autumn, 1907, and six during Spring, 1908.

Manchester.—There were 218 members of the Manchester Froebel Association, 138 also belonged to the Child-Study Society. "Speech" was the subject of three meetings, and five other lectures on various subjects were given. Local library was used steadily.

West Kent.—The membership had increased to 50. Seven lectures were given.

NOTES.

A SOCIETY which should claim our sympathy, inasmuch as it exists for the "Mental, Moral and Physical Improvement of the Race," held its inaugural public meeting in February last—"The Eugenics Education Society," having Dr. Slaughter for its Chairman, and Mrs. Gotto (82, Vincent Square, Westminster) for its Hon. Sec., and other distinguished members well known to our Child-Study Society, is connected with The Eugenics Laboratory, at University College, under the supervision of Professor Karl Pearson. Eugenics is defined as "The study of agencies under social control, that may improve or impair the racial qualities of future generations, either physically or mentally." There is sore need for education in Eugenics and for the social betterment which Eugenics should bring; we therefore welcome the society and wish it well.

THE scheme for a joint Education Congress, proposed by the Teachers' Guild, has for the present been abandoned.

THE Holiday Lecture course at Jena will be held as usual from August 5th to 18th, and will include lectures on School Hygiene, Physiology, and Psychology in addition to others on languages, etc. Professor Rein, who organises this Summer School, is doubtless well known to most of our readers as a leader in scientific education and an exponent of Herbartian method.

THE Second International Congress on Popular Education will take place in Paris from October 1st to 4th, 1908. One of the subjects to be discussed is "The International Exchange of Children," presumably for educational purposes, such as instruction in modern languages. For information, application should be made to M. Léon Robelin, 16, Rue de Miromesnil, Paris.

As a sign of the times it is interesting to note that a Toy Exhibition was held in the London Day Training College, Southampton Street, London, in Easter Week, and lectures were given on toys and on the educational aspect of play, nearly at the same time as similar subjects were being discussed by the Child-Study Society at the Exeter Conference.

A NEW prospectus of the Child-Study Society is now ready, and may be had on application to the General Secretaries.

ANY who are anxious to found, or to co-operate in founding, new constituent societies for child-study are asked to communicate with the General Secretaries, if possible, before the autumn term begins. All possible help would be given by the sub-committee for extending the Society.

THE London and Exeter Constituent Societies arranged for their members to visit special Institutions during the Summer Term. June 27th was fixed for London members to go to the "Philanthropic Society's Farm School" at Redhill; and June 11th, 13th, and 16th for Exeter members to visit "The Royal West of England Institution for the Deaf and Dumb" (Exeter), and June 20th for "The Western Counties Asylum for the Feeble-Minded" at Starcross. We commend the plan to the secretaries of other constituent societies. M. L.

REVIEWS.

Pioneers in Education. A new series of monographs on the great educators by Gabriel Compayré. *2s. 6d.* net per volume. (George G. Harrap & Co.)

It is a somewhat difficult task to realise the exact purpose and usefulness of these short monographs. To the learner they are much too sketchy and full of criticism, favourable and unfavourable, and would, for example, give him too little of Pestalozzi, and too much of critical analysis of Pestalozzi's theories; since he would be insufficiently acquainted with Pestalozzi's ideas to appreciate the real value of M. Compayré's remarks on them. To one who knows something already about the writers dealt with, there is too little of the original author and too little of M. Compayré to be very satisfying or helpful. Perhaps a good use of such a series would be to use each as a sort of bird's-eye view of the ground to be gone over, so that the mind may have some general ideas both of the best and the worst of what is to come. Or they may be used for revision. In either case they need to be taken with discretion.

For ourselves we hold very strongly to the theory that our first duty to a writer is to set forth his ideas, from his own point of view—so far as we can possibly realise this, whilst forgetting our own theories and doing our utmost to be merely impartial transmitters—and in his own words. This is, we believe, the only truly educational method of introducing a student, or reader, to a great thinker; and the only fair and proper preparation for criticising another's theories. M. Compayré appears to be, in effect, in agreement with us, for he writes :—"We certainly do not do justice to this vast conceptual whole when we limit ourselves in presenting in a short and dry [this is by no means fair to himself] review only the skeleton of a mighty and very active organism. To appreciate Herbart's pedagogy according to its merits, it is necessary to turn to original sources" (Herbart, p. 74). Again he admits that there is a danger of "weakening it by our abridgment and of making it shallower by our explanations" (Herbart, p. viii).

Having said thus much by way of explanation, we may at once say that within the limitations which he has adopted M. Compayré has given us some very interesting and informing summaries and criticisms. He is, as most readers of works on education will know, an able and learned educationist, an acute and incisive critic, and a lucid and interesting writer. As we should expect from a writer of M. Compayré's calibre he aims at far more, and better, than mere summaries and passing criticisms: he aims "to bring face-to-face ideas held long ago with modern opinions, with the needs and aspirations of to-day, and thus to prepare the way for a solution of the pedagogical problems confronting the twentieth century." For our own part we most heartily wish that he had taken his all too little space entirely for this; taking the knowledge of the main facts of the life and work of his pioneers as known, M. Compayré will, we hope, pardon us for saying that we cannot afford to have educationists like himself using their energy and time in writing skeleton "historical narrative," when there are so few who can—as he can—clearly and convincingly show to us that the question of education "is the vital one, the one upon which depends the future of the people; without which no social reform is possible; that, finally, the progress of education is the question of life and death for society and the individual alike" (Rousseau, p. viii),

1. ROUSSEAU is, very properly, taken as the first of the series, for he is the inspirer, if not the originator, of much of the work of those who follow him. Whilst M. Compayré gives us a good insight into the main principles of Rousseau, we cannot help feeling that the critic—not to say opponent—is far more prominent than the historian and expositor.

2. HERBERT SPENCER.—We are surprised that, in any case, Herbert Spencer is taken next after Rousseau. We should have thought that this place belongs most decidedly to Pestalozzi, who admits his indebtedness to Rousseau, and consciously endeavoured to work upon his principles. Further, we cannot agree that Spencer was, strictly speaking, a pioneer in education. While his book is of first-rate value, it has little that can fairly be called original—except in so far as his treatment is more powerful, direct and illuminating, from the purely theoretical point of view, than that of others. There is much truth in Mr. Compayré's remark that "many pages of this great book on education . . . . are little but a full and clear exposition and enlargement, an orchestral setting, as it were, of themes borrowed from *Émile*."

We think the sub-title "and scientific education" is a misnomer. There is, for educationists, a great difference between "scientific education" and "education through, or in, science." The sub-title properly belongs, in our opinion, to Herbart.

We regret to see, in a book by M. Compayré, the usual misrepresentation—through exaggeration—of Spencer's theory of natural punishment (see p. 101). Spencer explicitly declares that the "forcible prevention is called for," where "serious injury" might result; and that the principle of natural punishment is to be applied in relation to "small risks" (see *Education*, cheap edition, p. 117–8). It is still more to be regretted that M. Compayré has allowed himself to indulge in national recriminations (p. 84).

3. PESTALOZZI.—Like the other volumes, this is, on the whole, a sympathetic and interesting review of the man and his work.

The criticism on Dr. Biber—who was not an Englishman—is, in our opinion, unfair, and based upon false assumptions. It is true that he wrote a violent pamphlet—in defence of Niederer—in the course of an embittered public controversy. But Pestalozzi himself was guilty of the use of outrageous language in the course of these disputes. Moreover Pestalozzi has, in effect, himself admitted that he was, in his too great zeal and ambition, both a "charlatan" and a "hypocrite" in some of his doings. If M. Compayré had read Dr. Biber's *Memoir of Pestalozzi, and the plan of his Education*, he would have known how generous and fine a tribute Dr. Biber pays to Pestalozzi's genius and work, while fully aware of his failings and failures. We think it is time that justice was done to Biber, who has been, as we believe, most unjustly criticised by several writers.

4. HERBART.—In this case M. Compayré has been compelled to give great attention to the presentation of an outline of certain parts of Herbart's doctrine; and because of this it is likely to prove of considerable help as the "bird's-eye view" introduction to a study of the great educationist. There is, we consider, too much urging of M. Compayré's own views as against those of Herbart, for the young student.

Professor Adams is referred to as "an English humourist," and his book on *The Herbartian Psychology applied to Education* as a "humorous volume." This seems to us to be a case of putting the cart before the horse; we should certainly have thought of Professor Adam's wisdom before his wit, and his education before his humour.

The books are well printed and neatly got up; and there is a portrait of each of the subjects of the monographs. H. H.

The Pedagogical Seminary. March, 1908. Ed. by Dr. G. STANLEY HALL. Worcester, Mass., U.S.A.

The chief article this month, and a very interesting one to those who believe that child-study has much to learn from anthropology, is called "The Education of Backward Races," by Ernest W. Coffin. An analysis is made of the methods of education indigenous among peoples of such varying degrees of backwardness as the

natives of India, of Australasia and Polynesia, of Central and South Africa, and—in greater detail—the American Indians. The results of commercial contact with the civilised peoples, and of the deliberate attempts of the latter to educate the subject races are discussed and criticised. The conclusion reached is that missionary enterprise and governmental policy have both erred in imposing foreign systems of instruction instead of developing native culture. It is urged that great use might be made of native law, customs, and superstitions as instruments of law and order, and as sources of culture material; while the vernacular tongue should be used exclusively as the medium of instruction in the early stages of education. The whole subject belongs to the region of controversy, yet the conclusions reached are in line with what genetic psychology teaches with regard to children's education.

Among other articles are four recent addresses by Dr. G. Stanley Hall, on the Education of Young People in the Hygiene of Sex, the University Idea, the Public Library in Relation to the Reading Cravings of Children, and Music as Part of the College Curriculum. S. Y.

L'Educateur Moderne. March–May, 1908. 1 fr. 25 c. (Paulin et Cie., Paris.)

This periodical steadily gains in value; contains much of interest for those interested in child psychology, and especially considers problems connected with abnormal children. From February to April careful notes on a class of such have appeared, and M. Rouma's conclusions are noteworthy. An article in March on "Studies in Child Psychology," a critical résumé of studies on the development of language in normal children, and two in May on "Professional Schools for Abnormal Children," and on "Adolescent Dementia," and one in April dealing with methods of sight-testing are well worthy of attention. T. G. T.

Les Archives de Psychologie. February, 1908. 3 fr. 50 c. (Williams & Norgate.)

This issue is of more than usual interest and will well repay perusal. In the first article M. Katzaroff describes an investigation into memory processes. The tests consisted of reading over, a fixed number of times, eight or ten pairs of nonsense syllables shown on a revolving drum, after which the first syllables of the pairs were shown in different order, upon cards, the subject having to recall the missing syllables, the experimenter correcting any mistake made. To this latter process the term "recitation" is applied, recalling the American use of the word, and the problem was to determine whether, after a certain number of readings, such recitation or further readings would give the more aid to the memory. Six persons were tested, and varying combinations of readings and recitations were used; the results are given in a series of carefully detailed tables, the general conclusion being that, after a certain number of preliminary readings, recitations are superior to further readings, whether for fixing the impression, or increasing the promptitude and certainty of the response. In recitation the mental attitude is more alert, and the portions imperfectly grasped are noted for later revision, and hence M. Katzaroff thinks the most effective memorising method is found where at least two recitations follow the preliminary readings and are followed again by at least two readings—and thus until perfect.

The tendency of many young children to romance causes some perturbation to anxious parents sometimes—such should read an account by M. Rouma of an extreme case in a lad of five years old, with his suggestions for prevention or cure. An article by M. Mœder on the psychopathology of daily life is suggestive. T. G. T.

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Child-Study.

The Journal of the Child-Study Society.

CHILD-STUDY IN RELATION TO THE TRAINING OF TEACHERS.

By ALEX. MORGAN, M.A., D.Sc., F.R.S.E., Principal, Provincial Training College, Edinburgh.

Lecture delivered before the Edinburgh Society.—January 22, 1908.

The first care of the teacher should be to ascertain with all possible thoroughness the mind and the character of the child.—Quintilian.

How to know the child should be an important item of instruction to the teacher in training.—Report of the Committee of Fifteen.

It is probable that we know people claiming to be very wise and profound about the natures of men, who show themselves to be rather weak and shallow about units of babies.—Charles Dickens.

Great teachers in every age have, consciously or unconsciously, based their work on a notion of mind. Ever since education began to be reflectively considered, educational practice has been influenced by the psychological theories of the time. Socrates based his method of teaching on his doctrine of the innateness of ideas. Everything we can know, he said, already exists in the mind, and it is the function of the teacher to bring the ideas into consciousness by questioning.[1] This theory of education he carried into practice. In the midst of the turmoil of the market-place, and in the workshops of the artizans, he questioned his pupils, and thus taught them profound truths connected with the simplest and most concrete things. The condition of education in the Middle Ages is another illustration of the influence of psychology on current educational practice. The philosophical system of the time was in the main that which had come down from Aristotle,

[1] Had he gone one step further, and taught that the mind assimilates knowledge by the action of the ideas already in it on those being learned, he would have anticipated the modern doctrine of Apperception by over 2000 years.

but its initial vitality was gone. We may say of it what Matthew Arnold said in another connection :—

> " Its frame yet stood without a breach
> When life and warmth were fled ;
> And still it spake its wonted speech,
> But every word was dead."

To the jargon of the great Greek philosopher regarding the different stages and processes of the soul, there had been added during the centuries a belief in eternal verities, eternal substances, and permanent entities—a whole dreariness of words and phrases and meaningless subtleties. Psychology, too, had become buried in an abstruse and elaborate terminology, and had its full share in the pedantry and dogmatism that marked the other sciences. The mind of man was regarded as a fixed thing, not as a living process. Mankind at all stages was supposed to have one type of mental life, made up of the same aggregate of faculties ; there might be variation in amount or quantity of power, but in other respects there was no difference in the mental equipment of old and young—the child mind was just a simplified and incomplete adult mind. There was nothing embryonic in the mediæval conception of mind, no living principle of development, the mind grew from infancy to maturity simply by a mechanical process of addition.

This rigid and unvitalising view of mind reflected itself in the dead and formal teaching of mediæval times. As the mind and its faculties were the same throughout, the subjects taught were identical for pupils of all ages, only simplified and made easier for the young. The realm of knowledge was divided into subjects, and each subject into a logical subdivision of sections, lessons, and facts, each to be taught in a definite part of the course. Little wonder that under such conditions learning and science made no headway. It was against this condition of mental stagnation that Bacon directed his strenuous and successful attack. But the application of the doctrine of induction to the science of mind was not made by Bacon. This was left to his disciples, especially to Hobbes and Locke, the latter of whom may be regarded as the discoverer of the scientific method of studying mind by introspective observation and analysis. By means of introspection an advance was made for the first time straight into the realm of mind-knowledge, and more facts and principles concerning mind were learned in two or three generations than during all the centuries from the time of Aristotle.

I have dwelt on these changes in psychological theory because of

the important influence they exerted on education. The school does not lead, although it is the popular opinion that it does so; it marches in the wake of science and philosophy, and reaps the benefit of any improvement in either, and then in turn it becomes a moving force of incalculable power in the life of the people. So it was in the case of the scientific reform initiated by Bacon. He did not apply his new method to the work of the schools. That was done by a series of brilliant educational reformers—Ratke, Comenius, Rousseau, Pestalozzi, and Froebel, all of whom derived, in various degrees, their inspiration from him. To Rousseau belongs the merit of being the first to expose the cardinal fault of education as he found it, namely, making the acquirement of knowledge the sole aim of the school. In the multiplicity of subjects, Rousseau said, the most important subject of all was lost sight of, viz., the child himself. Let me quote one or two sentences from Rousseau, which show that we may regard him as the founder of Child-Study. In his work on the ideal scholar, 'Emile,' he says, "We do not understand childhood, and, pursuing false ideas of it, our every step takes us further astray. The wisest among us fix upon what it concerns men to know, without ever considering what children are capable of learning. They always expect to find the man in the child without thinking of what the child is before it is a man. Begin then by studying your pupils better, for most certainly you do not understand them." And again he says, "Nature wills that children should be children before they are men. If we seek to pervert this order we shall produce forward fruits without ripeness or flavour, and, though not ripe, soon rotten: we shall have young savants and old children. Childhood has ways of seeing, thinking, feeling, peculiar to itself; nothing is more absurd than to wish to substitute ours in their place." We cannot state the case for Child-Study better than that. In another passage Rousseau says, "I wish some discreet person would give us a treatise on the art of observing children—an art which would be of immense value to us, but of which fathers and schoolmasters have not as yet learnt the very first rudiments." That passage was written by Rousseau nearly two hundred years ago, and we are still waiting for the discreet writer for whom he longed.

Pestalozzi and Froebel were disciples of Rousseau in his advocacy of Child-Study, for, like him, they believed that the child as an essential factor in education had not received sufficient consideration. But they added an idea totally new to psychology and to education, namely, the Theory of Development—the immediate forerunner of Darwin's Theory of Evolution. The mind, they said, is not a fixed thing with a ready-made assortment of faculties, it is a living process existing in embryo in

each human being, and capable of organic growth and development by the suitable exercise of its powers. It is the function of education, and one of the foremost duties of the teacher, to provide exercise of the proper kind and amount, so that the whole being, mental, moral, and physical, may be developed to the fullest extent of which it is capable.

These three writers—Rousseau, Pestalozzi and Froebel—may be regarded as the founders of Child-Study, and Rousseau's 'Emile,' Pestalozzi's 'Leonard and Gertrude,' and Froebel's 'Education of Man,' may be considered the first, and perhaps the best, of the writings dealing with the subject.

Child-Study, then, is not, as so many believe, merely the latest fad of the New Education which will soon run its course. On the contrary, the conception on which it is based has given rise to great reforms in education during the past two hundred years, and it is destined, we believe, to have an even greater influence in the future. The idea that consciousness grows and is not ready-made was long prior, as I have already said, to Darwin's theory that the body grows and is not made, and the influence of the theory of development, when we have learned more fully its meaning and use, will produce as great a transformation in the educational sphere as the theory of evolution has already worked in biologic science.

Before considering in detail the part that Child-Study should play in the training of teachers it will be necessary to try to determine the aims or purpose of the study, for on this the selection of the suitable subject-matter and the whole method of treating it will depend. I know no subject that has suffered more at the hands of unwise friends than Child-Study, and just because they have had no clear conception of its true aims and scope. In their ignorance they have entertained the most extravagant expectations as to what it could accomplish. It was to displace entirely the method of the "old" psychology, to reveal at last the constitution of the human mind, to build up a true science of education, and to revolutionise our practice in teaching—to bring about, in short, the educational millennium. No wonder that such claims, and the slender evidence on which they are based, have brought ridicule upon Child-Study.

First, I would remark that the aim of Child-Study for teachers is *not* scientific investigation. There has been a great deal of harmful confusion in psychological and educational literature on this point. There is a kind of Child-Study which requires more or less elaborate experiments on children, careful measurements, the tabulation of extensive observations, and the application of statistical methods. We may call this Scientific Child-Study. Work in connection with it, to be of any

value, must be planned and directed by specialists who are acquainted with the literature of the subject, who have been trained in exact laboratory methods, and who have such a knowledge of statistics as to be able to handle the results successfully. I think it will be obvious that this is not the kind of Child-Study for the schoolroom, and that obtaining scientific results is not the aim of the Study in the training of teachers. The child himself, and his good, should be the starting point, the middle, and the end of Child-Study for teachers. I have a strong objection in general to children being experimented upon in schools. "Hands off the child" (and this, of course, not merely in a physical sense) was the constant injunction of Froebel to his students. Teachers have to regard children not as laboratory problems, but as beings of flesh and blood whom they have to help to live healthy, pure and useful lives.

There is no reason why student-teachers should not go through a course in experimental psychology. On the contrary, provided time can be found for it, and provided it is not given too early in their psychology course, it may do much good by giving them an insight into scientific methods and results. Nor should we say that teachers should never conduct psychological experiments if they are qualified to perform them, and if doing so does not interfere with their proper work, only it must be thoroughly understood that in that case they are acting as scientists and not in their capacity as teachers.

Again, it is of importance to point out that the aim of Child-Study in the training of teachers is not to lead the students to discover or even to verify the facts and principles of psychology for themselves in order to apply them to education. I hope I shall not be considered a Philistine if I confess that it always seems to me that there is a tendency to over-estimate the practical utility at the present time of psychology in education. The known laws of psychology are not numerous, and many of them have no connection with teaching, and the course of instruction would be meagre indeed that was based solely on those relevant to education. As psychology progresses it will more and more provide useful rules for the art of teaching, and the time will come, we hope, when we shall have a scientific pedagogy founded entirely on a scientific psychology, but that day is not imminent. The teacher cannot afford meanwhile to sit and wait for the crumbs that fall from the table of the philosophical or experimental psychologist. In his work he is continually brought face to face with the tangled facts of psychic life, and part of his training should aim at teaching him to observe such facts accurately, and to put a correct practical interpretation upon them.

I have tried to point out what I believe to be prevalent misconcep-

tions of the purpose of Child-Study in the training of teachers. Let me state now what I think are the two chief functions the study of childhood should always fulfil. One is to put the student-teacher into the proper mental attitude towards child nature and to give him a living and sympathetic interest in child life. A student's power to control a class and his general success in his future work will depend more than anything upon his power to get into sympathy with the children and to place himself at their stage of development. A successful teacher has to live every day, to some extent, the life of every child in his class, and this is one of the strongest arguments for smaller classes than are to be found in most of our schools at the present time.

A second aim of Child-Study in the preparation of teachers is to enable them to understand the personality of their pupils. Each individual mind is unique, is *sui generis*. Nature has not made our minds, any more than our bodies, all of a pattern, and we should not seek to thwart nature by trying to force all minds into the same mould and to impose upon all the same kind and degree of mental training. In every mind there are unknown possibilities, and it is our duty to find out and to develop what of good is lying in embryo there. Herbart has a strong statement on this point. "The teacher" he says, "ought to make it a point of honour to leave the individuality as untouched as possible; he ought to leave to it the only glory of which it is capable, namely, to be sharply defined and recognised even to conspicuousness, that the specimen of the race may not appear commonplace by the side of the race itself, and vanish as insignificant." It should be our perennial interest to encourage originality and independence among our pupils, and to educate each of them along the lines of his greatest strength in a broad and liberal way.

Such being, as I conceive it, the chief aims of Child-Study in the training of teachers, let us now consider the scope and method of the Study. The subject-matter of Child-Study should include :—

1. A knowledge of the body, its systems and organs, their structure and functions, and the laws which regulate physical growth and development.

2. A knowledge of mind, its nature and modes of action, the laws which regulate its growth and development, and its relation to nervous activities.

3. A knowledge of the moral and spiritual nature, the laws which regulate its growth and development, its relation to body and mind.

From the nature of the case the method of obtaining this knowledge of the triple nature of the child should be as largely as possible concrete and practical, or, to express the same idea in the form of a truism, we

ought to teach Child-Study by studying children, not by lectures or books regarding them. Furthermore, each student should be required to study one or two children thoroughly rather than many superficially, and should make systematic observations of the children in and out of school, in their work and in their play.

Following the rule just enunciated, the practical study of a child should commence with his physical condition. It ought to be the first care of education to preserve the health and to increase the power and efficiency of the child. The development and improvement of the physical nature makes it a more prompt and efficient servant of the mind and of the will. Physical training should do more than increase the size or strength of the muscles; it should lead to greater achievement in the realm of mind and conduct, and this is one reason why it forms such an important part of our modern conception of education.

Yet another reason why the student-teacher should be taught how to study the physical side of child life is that by doing so he will have it in his power to prevent or check many of the diseases or bodily defects of children, which, if neglected, will render them dependent on others when they become adults. Our country is burdened with dependents in one form or other—the insane, the feeble-minded, the epileptic, the blind, the deaf and dumb, and the paupers. In the year 1902–3 (the latest year for which I can find complete statistics) the sum collected as School Rates in the United Kingdom was £16,274,000 and the sum gathered as Poor Rates was £15,992,000, that is to say almost exactly equal sums were expended from local resources on education and on supporting the poor. In Edinburgh, for every shilling expended from the rates on elementary education 8*d.* is spent in supporting the poor, and this does not include the large sums expended for the latter purpose by charities. Nor need we wonder at the large number of dependents in adults when we consider the percentage of physical defectives among children. We often get figures bearing on this subject in our own country, let me illustrate my point from Germany. In the year 1900, 40,000 school children in the Duchy of Saxe-Meiningen were examined by doctors, and it was found that 23 per cent. had defective eyesight, over 10 per cent. had spinal curvature, and 60 per cent. had bad teeth needing attention for the sake of health. Considering the incalculable amount of human failure and of economic loss that might be avoided by more attention to the health of children, the cost of greater supervision of health by medical officers and teachers would be a mere trifle compared with the amount spent at a later stage on poor rates and on charities. It would be more humane and a truer economy to spend money in detecting the

beginnings of weakness and disease, and so rendering many of those self-supporting who otherwise become burdens upon others.

In training teachers we cannot and should not aim at making them specialists in any matters concerning health, but we should make them competent to detect the important signs of common ailments, sensory and motor defects, and the early symptoms of infectious and other diseases, in order to draw the attention of parents to these with a view to their medical treatment. I need not go into more detail regarding the biological examination of the child; that is fully dealt with in books on the subject by Dr. Warner, Dr. Drummond, and others. The examination should include tests of the senses. This does not require a detailed study of the physiology of the sense organs, or of the relation of stimulus to sensation. Teachers should be trained to test visual acuity, and to detect astigmatism and other characteristic defects. Extensive tests made in our own country and in others have shown that defects of vision increase during the school life of the children. Under a rational system of education children should leave school with a greater power of seeing than when they entered it, and surely we are at least entitled to ask that injury to the eyes should not be inflicted by school work, as is too common at present.

Teachers should also be trained to test the hearing of their pupils in order that any defects discovered may be remedied, and the child's mental development thereby improved. Recent investigations show that there is a much larger percentage of pupils with defective hearing than was formerly supposed. Teachers should be taught to examine the throat and nasal passages, for we know that, particularly in children, adenoid growths and chronically enlarged tonsils injure the health and retard bodily and mental development. Again, extreme dermal sensitiveness and callousness are important as indications of defects of the central nervous system. Teachers should therefore be trained to test sensitiveness, and corporal punishment is not the only method of doing so.

The main field of education is the nervous system, which is the basis of all mental phenomena. The possibility of education is based upon the ability of the nervous system to receive and respond to stimuli, and to register impressions and revive them at will. Hence every care should be taken of the nerve centres, and it is particularly necessary during periods of rapid growth not to irritate or oppress the nerve centres and so produce, as medical men tell us, chorea and other forms of neurotic disease. For these reasons all indications of the condition of the nervous system should be studied and watched by teachers. We can do this to some extent by observing the movements

of the child. We know that in cases of injury or disease of the central nerve organ the nature of the weakness is learned by noting the peculiarities in the movements of the patients. So too, even in the case of healthy persons, movements constitute a very valuable index of the action of the brain, and therefore the systematic study of spontaneous and acquired movements, and of habitual postures, and the methods of testing the motor abilities of children, should form a part of the training of teachers.

Leaving the biological, we come now to the mental side of Child-Study. My opinion, based on experience in teaching the subject, is that Child Psychology is best approached through the introspective study of our own minds. A good deal of self-study is necessary before we can realise anything about how a child really thinks and feels. This arises from the elementary law that the mind can grasp the unknown only through the known, and the abstract through the concrete. As an American writer[1] very well says, "The student of the psychology of childhood must develop some sort of apperceptive organ for the observation and interpretation of the mental phenomena of childhood before he can profitably undertake such study . . . All facts of psychology must ultimately get their meaning through introspection and comparison with the only mental life of which we have any immediate experience, i.e., our own. If the student has not cleared up his hazy notions of his own daily mental activity, I cannot see how he can study intelligently the mental phenomena of childhood, of which he has only dim and unreliable memories."

Student-teachers should therefore in the first place be put through a course of experimental introspection. We should call into existence in their minds certain sensations, perceptions, memories, ideas, thoughts, feelings, etc., and require them to observe what is going on in their minds during the mental process, and to analyse and describe it. I need not go into details regarding the method to be followed; it is as old as the Greek philosophy itself, and exercises in it can be found in every standard work on psychology.

When he has acquired a certain amount of facility in observing, analysing, and interpreting the facts of his present mental life, the student should be required next to call up and examine the memories of his early mental states. Our own past self is the only child whose thoughts and feelings we can observe directly. It is difficult to get back to our infantile way of looking at things, and our recollections of our early thoughts and experiences are at best fragmentary. Moreover, they are often so coloured by the intervening years that it is not easy to

[1] Prof. A. Caswell Ellis in *Teachers' College Record*, January, 1905, p. 7.

distinguish the *Wahrheit* from the *Dichtung*. With effort, however, we can recall "Some fragment from our dream of human life." If we can reconstruct even a part of our childhood, the result will be a more sympathetic understanding of our pupils, a greater ability to put ourselves in their place, to enter into their ideas and ways of regarding things, and to appreciate their difficulties.

The student, having examined by introspection and reminiscence the facts of his adult and early mental life, now has the necessary stock of ideas (apperceptive material) to give support and significance to his study of the phenomena of child mind in general. Without going into detail, I may say that the student should be required first to make general observations regarding the mental activities of the child. An attempt should be made to find out his present stock of ideas. His power of attention should be tested. Is he eye-minded or ear-minded? Does he belong to the sensory or motor type of mind? What part of the work of the class is he most interested in? What part does he assimilate and what reject, what remember and what forget? If the pupil is failing in any part of his school work, what is the cause? The teacher has to find this out in order that it may be remedied. Is it due to a sensory or a motor defect, erroneous apperception on the part of the child, or faulty presentation by the teacher? Such questions must be answered by every teacher who really wishes to have a first-hand knowledge of the mind it is his duty to educate.

After these general observations, the special intellectual activities of the child, such as perception, memory, imagination, reasoning, etc., should be studied, not as though they were independent faculties of the mind, but simply the mind adapting itself to the different conditions under which it is called upon to act. Only simple tests such as can be readily applied in the schoolroom should be used. I need not enter into particulars regarding them, they can be found in most of our modern books on psychology. If there are any school reports regarding the child's attainments in different subjects and his progress in his studies, these should be consulted so that by comparing all the data available the student may have the fullest understanding of the case. One or two investigations of this kind, thoroughly carried out under competent guidance, will do much more to make the students eye-, ear-, and thought-minded towards the phenomena of childhood, than any number of lecture or textbook dissertations on the subject.

Students in training should get opportunities of studying abnormal as well as normal children, for such cases are not only important in themselves, but the study of them throws fresh light on the working of the ordinary mind. Institutions for the deaf, the blind, the feeble-

minded, and for juvenile delinquents should be used as schools of observation by the students.

Child-study should always include inquiries into mental fatigue brought on by school work. Efficiency has been defined as obtaining the maximum of result from the minimum expenditure of energy, and in the intellectual world this can only be obtained by keeping fresh and avoiding unnecessary fatigue in every shape and form. "Under the strains and exhausting calls of modern civilized life," says Mr. Francis Galton, "the power of endurance is rising continually in importance. Men and women have now-a-days to act rapidly for many hours, and to act exceptionally well. It therefore seems very reasonable that teachers should direct their attention to some fair way of determining the relative power of endurance among school children."

Fatigue is the necessary accompaniment of mental or physical work. We cannot get rid of it. It is Nature's kind warning against over-exertion. The problem of the teacher is not to eliminate normal fatigue but to prevent excessive and continuous fatigue, which may lead to a long list of mental and physical ills such as chorea, hysteria, neurasthenia, etc. "Fatigue in every shape" says Ribot, "is fatal to memory." Stanley Hall is even more sweeping in his assertion. "The most mind-destroying agency we know," he says, "is effort in a fatigued state." The danger of ill effects from fatigue is greatest in nervous children, in periods of accelerated growth, and in those entering on adolescence, and yet these are the very times when in our educational system the greatest demand is often made on the mental powers of youth.

Every teacher in training should study the indications of fatigue, and be able to apply simple tests to detect it.[1] He should ascertain the conditions that most rapidly induce it. He should be constantly on the alert to discover the means that should be taken to reduce fatigue in school to a minimum, whether this necessitates shortening the school hours, having more frequent play intervals, lessening the amount of work demanded, or arranging the time table so as to have stronger contrasts and greater variety in the daily work.

A study of the intellectual activities of the child should be followed by a study of his moral nature. Every teacher should know at first hand the emotional and impulsive characteristics of childhood and the proper method of dealing with these, for out of them the virtues and

[1] All sorts of methods have been employed, such as the rapidity and accuracy of adding or multiplying numbers, or solving easy arithmetical problems, or testing the power to memorise lists of words. Exact instrumental measurements by means of dynamometers, ergographs, sphygmographs, etc., are not for ordinary teachers.

vices of adult life are evolved. Hence those preparing to be teachers should be trained to observe this most important side of child life, in order to discover what rudimentary tendencies are favourable or unfavourable to moral development, and to ascertain the best methods of encouraging the right tendencies and suppressing the wrong ones. We know the great influence often exerted by one or two pupils in determining the moral sentiment and tone of a class. It would be a useful exercise, therefore, to require some of the students in training to make a special study of such scholars, to find out what it is that gives them their influence, and what it is in them precisely that their followers imitate. Such a study is of the utmost value not only because of its direct and important bearing on school work, but also because in studying the relationship between leader and follower we are getting an insight into one of the great forces that have moulded human society and shaped the course of history.

We are all of one mind as to the theoretical importance of psychology in the professional equipment of teachers. Teachers should be practising psychologists *par excellence*, and yet at the present moment probably not one teacher in ten consciously bases his teaching on psychological principles. That psychology has remained practically a dead letter to teachers is due to a large extent to the way in which it has been taught to them. Their study of psychology has commenced with the adult mind, and as a rule it has not got beyond that. The subject is taught too often solely by means of lectures and textbooks as a branch of mental philosophy. Such a procedure does not illustrate the principle that beginnings in every science should be based on concrete examples, and that generalisations should be derived from the examination of particular instances. Students obtain in this way what may be called a logical but not a practical knowledge of mind; they may have an awe-inspiring ability to define perception, memory, reason, etc., and may be able to repeat all the laws that govern them, but what avails such a knowledge as this to teachers when they are brought into contact with the crude living material before them? The generalisations memorised are of little use then, because they have been divorced from the particular instances that would make them intelligible. So far as young students training to become teachers are concerned, it would be safer to keep them on the inductive side of the subject, and not to hurry them towards the larger generalisations of formal psychology. The study of the child should begin with his physical characteristics, since these are so closely inter-related with his mental activities. This should be followed by a course of experimental introspection and of reminiscence exercises by the student. It is the duty of the teacher of

psychology by wise questioning to direct the students in their examination of what is passing within their minds but has not hitherto been a part of their conscious experience. From the knowledge thus gained of the working of their own minds the students will be prepared to interpret the mental experience of others, and to proceed to the course of Child-Study proper. When it is finished the students may, if there is time, proceed to a fuller study of Adult and Experimental Psychology. But what teachers most need is practical, not theoretical, nor experimental psychology. In Child-Study for teachers the aim should not be the making of scientific discoveries. As Professor Burnham, of Clark University, says, " Child-Study is primarily for the sake of the teacher, secondarily for the sake of the child, and incidentally for the sake of science." It benefits the teacher because it enables him to diagnose the child physically, mentally, and morally. It establishes in him the habit of observing the young in order to find out their ways of looking at things, their likes and dislikes, how they are stimulated to exertion and how they are discouraged. The study of childhood is endless, and it gives the educator an ever-fresh conception of his great task. If in the reorganisation at present taking place in the training of teachers in this country the study of the Child is not given a prominent place, there is little prospect that the teachers of the future, however great their knowledge otherwise may be, will surpass in skill and efficiency those of the present generation.

PLAY.

By BERESFORD KINGSFORD, M.D., D.P.H.

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It is usual to contrast play and work as though work were the antithesis of play. But the main elements of both are activity and satisfaction.

Activity without satisfaction is not work but drudgery.

Pure play, like "jumping for joy," is full of satisfaction; the work is wholly physiological, not psychological, *i.e.*, not felt as work.

Here there is no remote or proximate end to be served.

As children grow up their motor activities become more and more directed by the co-activity of the senses to (more remote) ends.

A boy who climbs about the banisters for the mere love of climbing presently climbs trees to get birds' nests. When he no longer climbs for the mere love of it an element of work comes in.

The exertion no longer gets its full reward at once in the mere feeling of activity, part is deferred for a little while. The part of the activity unrewarded at the moment is work, for in it a resistance, not physical, as of gravity, but psychological, the resistance of aversion, has to be overcome.

Opposed to the aversion is an overwhelming desire, but still there is some slight internal conflict between them. If the tree is high and the chance of eggs doubtful, the aversion may prove stronger than the desire. It is this conflict, this internal friction, which always enters into our conception of work.

As the end becomes more remote, more "work" enters into the activity; and when the end becomes so remote or unintelligible as to be imperceptible to the worker, *all* satisfaction fades out of the performance and work becomes drudgery.

To a child a morning's work becomes drudgery if the reward be postponed from that day to one a fortnight later.

The real antithesis to play, with its minimum or absence of effort and maximum of satisfaction, is drudgery; in which we find a maximum of effort and little or no satisfaction.

Work approaches play or drudgery in its character according to the proportion of effort and satisfaction felt therein.

Physical effort always involves muscular action, though not always movement; but children find it hard work to sit still and keep quiet *i.e.* to *suppress* movement. Here also the work lies in the conflict between Aversion (fear of consequences) and Desire, though their rôles are reversed. The development of ability turns on partial suppressions of the random movements of infancy by experience.

The part played by muscular action and movement in the genesis of ideas has not always, perhaps, been fully appreciated. Our ideas of position, size, shape, solidity and distance are partly acquired through, and based upon, our feelings of movement or muscular action.

As a child moves its fingers along the surface of its own body, it excites a number of nerve endings in succession and produces successive states of consciousness. When with a hand it covers at once the whole surface previously traced those nerves are excited simultaneously and produce what tends to become a single state of consciousness.[1] These states of consciousness are frequently repeated, and along with them a series of sensations of muscular tension, joint-pressure and tendon-stretching, all included under the term kinaesthetic impressions. As these experiences accumulate and become compared, notions of space, time, and motion gradually arise.

Such "accumulation" and "comparison" imply registration of the effects produced by the movement. This registration takes place in the higher part of the brain, the cerebral cortex. Before birth the cortex is like a mass of jelly with numerous round cells in it. At birth these cells have become grouped together in certain parts, and neighbouring cells in a group have branches extending towards one another. These groups of branching cells are called sensory centres. Every touch on the skin sends a current to the centre for impressions of touch, and every contraction (or relaxation) of a muscle to a kinaesthetic centre. Receipt of nerve current from below causes the sensory cells to discharge in sundry directions towards other cells and in so doing to branch out more freely. Some tracts of the matter between the cells offer less resistance to the discharge than others, and soon become worn smooth, so to say, and established as definite lines of communication. They are distinguished from the surrounding matter as branches of the nerve cells, and become more numerous as the experiences increase.

A further step in the same direction provides the physical basis for the comparison of experiences. Every change of light affecting the eye, and every change of air vibration affecting the ear becomes similarly registered in the visual or auditory centre.

[1] Adapted from Spencer's *Principles of Psychology*, §343.—Collin's Epitome.

Many such changes take place simultaneously with those of skin and muscle nerves or immediately precede or follow them. Discharges between the cells of different centres tend to follow definite lines, and these lines become sheathed in fatty material (like an electric wire in rubber), forming "association" fibres.

Our notions of space, time and motion may be said to be based on the establishment of multitudinous associations between different, sometimes distant, parts of the brain.

In most of these associations the kinaesthetic centres are involved at first.

The grasp of the hand, the suction of the lips and bite of the jaws, the thrust of the arm and the exertions of the legs tell a child more of the outside world than its eyes do.

Those who receive their sight in adult life tell us that all things look flat at first and seem to be in immediate contact with themselves. Skin and eye give us superficial impressions only till these have been corrected by muscular sense. Even in later life visual apprehension of shape depends partly on impressions received from the muscles moving the eyeball. Variety, is even more important than amount, of movement. The more freely the kinaesthetic cells branch out, the greater the scope for "associations" with cells of other centres. But variety in the environment is needed for the establishment of the most complex "association" systems. An immense variety of movements can be practised in a good gymnasium (like that of the Norwood School for the Blind), but nothing like the varying circumstances of the football or cricket field is to be found within those four walls.

The formation of association systems is the physical substratum of the development of the random movements of the Infant into the definite acts of the Man. But we must beware of making children's responses stereotyped by over-exercise in a limited number of ways.

We want nerve-cells with numerous twigs capable of forming fresh associations; not a few (too) well-matured branches. The more intimate the connections between the elements of two sub-systems, the less the freedom of communication between them and other sub-systems. We don't want "adaptation at the cost of adaptability." Dr. William McDougall says:[1] "In a higher type of brain the neural systems are more complexly interwoven, sub-systems becoming freely associated with many principal systems." Congenitally blind or deaf children often become mentally vigorous, but children born paralysed seldom acquire much mental capacity. "In those in whom all four limbs are affected, there is as a rule much mental change; if the lower limbs only are paralysed, the

[1] McDougall's *Physiological Psychology*, p. 139.

mental condition is frequently good." [1] As normal children grow up and develop, the movements of the upper limbs become much more *varied* than those of the lower limbs.

Though a pretty definite response may come to a definite provocation or stimulus, the energy of the response may greatly exceed that of the stimulus. Thus a sudden noise may cause a start of the whole body, and tickling the soles may cause general convulsions. So the nervous mechanisms for the execution of responses must contain much stored energy. Though less elaborate in the child than they are in the adult, these mechanisms are no less charged with energy, which is derived in the main from the food.

When the mechanisms for trains of action are full of energy their state of repletion is reflected in consciousness as Desire. Some desires are hereditary, these we call Instincts; the desire of the beaver to build a dam, or of the swallow to migrate.

How far down the animal series the instinct to play may be found seems open to doubt. Lombroso [2] seems to have thought that the microscopic Rotifers play games between the cover glass and slide. Whether this interpretation of their movements be true or not, it seems safe to say that nothing is known of the education of Rotifers. Romanes [3] held that fish play, and Lubbock [4] quotes accounts of the games of Ants. No one can doubt that some birds play, and the games of various mammals are well known—above all, the everlasting tricks of monkeys. The longer the period of helplessness after birth, the greater the time for play, and the more numerous are the opportunities for education.

The human infant is the most helpless of all creatures born, and is accordingly the most educable. For it has not less, but more instincts than the lower animals. Let us not despise these instincts, which afford us all the raw material we have to work upon. To make the best use of them we must know the order of their appearance, for it is obvious that few, if any, of them are manifest at birth. The following list of instinct stages is adapted from Dr. Woods Hutchinson.[5]

First, the root-and-grub stage, wherein the baby tries all things with his mouth. To taste, absorb, or reject, that is his whole business in life.

Second, the explorer, hunter-warrior stage. Not long content with tasting things within reach, he uses all his limbs to get at things out of reach, and another step takes him in pursuit of things moving out of

[1] Allbutt's *System of Medicine*, vii, p. 736.
[2] *Humanitarian*, Oct. 1898, p. 1; and *American Naturalist*, 1894.
[3] *Animal Intelligence*, p. 247.
[4] *Ants, Bees and Wasps*, p. 28.
[5] *Contemporary Review*, Sept. 1903.

reach—the instinct of the hunter. Just as things hide themselves from his sight, so he takes cover, or, for lack of it, shuts his eyes. It is only a step from the endeavour to seize moving objects to a struggle to catch and subdue living things—the instinct of the warrior. With possession comes accumulation, and with it his instinct development reaches the third stage—the pastoral or collecting stage.

The child now collects everything it can get hold of, from beads to dolls and all kinds of rubbish. Later he collects beetles and butterflies and keeps silkworms, mice and birds. He buries his pets when they die, and from thence it is but a small step to the occupation of land for other purposes, and with this he enters upon the fourth or agricultural stage. Nothing will now serve his turn but a garden, and though only a row of a dozen flints, perhaps, separates his patch from another, he is as jealous of his landmark as an emperor of his frontier. Next comes the commercial stage, so characteristic of boys at "preparatory" schools. All day long he is thinking of and bargaining over "swaps." How many stamps he can get for a pocket-knife, and so forth.

Such deals as these begin in the "collecting" days, but the sway of the commercial instinct reaches its zenith when the uses of things appeal more to his mind than mere possession. The instinct stages are not sharply marked off from one another, but follow each other like the flowers in spring. All the instincts find their natural expression in play, the basis of all education.

If there is no desire for play there is generally but little energy available for work. Without surplus energy to dispose of, there can be no practice in regulating its outflow in response to the suggestions of the environment.

But now we are told that our children have to be taught to play! Is it that children don't know how to play? Is it not rather that city life denies them the needful opportunities for play? Of late the authorities have been making some alterations in Hyde Park, and amongst other things they put up a great mound of very irregular configuration. This was a godsend to the children in our part of the town. Until it was enclosed they were playing on that mound all day long, running up and down, or round the steep sides of some conical pits in it; and when their legs were tired they slid down the pits, pressing flat stones and even bricks into their service as toboggans.

Children play fast enough as opportunity offers; in hospitals, for instance, they go round from bed to bed like doctor and nurse, and caricature with merciless fidelity the manners of those officers towards one another.

Mr. Hughes[1] tells us that French and German children play but little, and that even American children seem to be losing the faculty of play. Perhaps the French and American families are too small; but this cannot apply to the nurseries of Germany. Perhaps there, too much superintendence stifles play. As soon as children *have* to play the play becomes work, and when they have to play prescribed games to order, drudgery is not far ahead.

Mr. Hughes says that the compulsory instruction in agriculture of France and the organized games of Germany are both rather failures.[2]

Regarded as part of the school work, much of the training at Hyannis[3] strikes one as excellent, but let us hope it is done in school hours, and not allowed to curtail the time available for spontaneous play. The evils of over-instruction are many, but perhaps the worst is the impairment of adaptability, or the power of dealing with untried and unexpected circumstances as they arise. For Britain this was disastrously illustrated in the Boer war. All the more successful Generals had the advantage of not having passed the Staff College, while nearly all those who failed in the field had the coveted P.S.C. before their names.[4]

When play is spontaneous there is a primary desire for the movements undertaken and the dexterities achieved. There is more gratification in the execution or achievement when these are desired for their own sake than when they are desired secondarily *i.e.* as means to an end.

It is said that the association between some sensory pathway and the motor pathway traversed in the successful attempt at response —as when a child hearing a new word (after a few failures) succeeds in pronouncing it—is "stamped in" by the pleasure of success; while those traversed in the failures are "stamped out" by the pain of failure.[5] It may not be easy to see how a mental state of pleasure "stamps in," or of pain "stamps out" any association.

But along with the pleasure felt goes an improved circulation, and the most recently formed "association" pathway gets the advantage of that. Then one of two events follows. Either the utterance (or other action) may be exactly repeated at once, and then the new association will be strengthened by repetition, *or* some entirely different action follows.

In the latter case the nerve current is diverted to other systems, and the new association has a little time to settle and become consolidated

[1] "The Making of Citizens," p. 173 (*Contemporary Science Series*).
[2] *Ibid.* p. 174 and p. 247.
[3] *Child Study*, April, 1908, pp. 6–8.
[4] *XIXth Century*, Feb. 1903, p. 317.
[5] *Physiological Psychology*, pp. 148, 149.

before the nerve current comes its way again. When repeated attempts (at achievement of any kind) are made without success, pathways which are *partly* (but not wholly) identical must be traversed each time and each attempt, in succession, must weaken the association just made by its precedessor, and fatigue sets in sooner or later. As long as play is wholly spontaneous there is no fear of actions being repeated after fatigue has set in. Repetition after fatigue has set in is prone to spoil performance, by making the muscular adjustment less exact. For the feeling of fatigue reflects in consciousness the rise of resistance in the new nerve circuit, and with it a tendency for the current to overflow into other circuits. Children (in the poorer classes) want further and better opportunities for spontaneous play without any obvious supervision at all.

These might be easily secured if all schools could be taken into the country at once. There is a movement in that direction already which will probably be promoted more by the motor-car, telephone and electric distribution of power, with their decentralizing tendency, than by any kind of legislation. Dispersal of population may come gradually. In the meantime what uses can we make of the means of play we have already and how can we extend them?

Playgrounds might be made to afford more chance of play for little children. Their asphalt surface is all very well for drill, wand exercises, and organized games, but these are not for little children. What they want is something they can dig into and mould to their own liking; loose earth and sand heaps would be a godsend to them. Some part of every playground should be dig-able and open to the weather, and some should be sand-heap or mound partly roofed over.

All healthy girls and boys want to climb at some time in their lives so trees should be found in the ground to afford them exercise and to cultivate self-reliance thereby. Even old stumps like those seen in the cages of lions and monkeys at "the Zoo" would serve the purpose of the children—for whose benefit the schools are supposed to exist—better than ornamental saplings. Then a stock of simple toys such as spades, pails, wheelbarrows, go-carts, ropes and hoops is wanted like those provided at the École Maternelle at Paris. But the toys should not be provided out of rates—they should be earned by the scholars.

The elder children at a leading elementary school in Wandsworth get up concerts and similar entertainments in winter, and with the zealous aid of the teachers have thus acquired a good stock of play-things. Amongst them are a number of semi-solid rubber balls, excellent for cricket in a small and rather crowded space, as they are fairly massive, but less hard than the ordinary ball.

Cricket can be played in various ways, a circular game something like rounders can be enjoyed by several children at once. But two are enough to play the game. At the oldest school in the kingdom [1] the game was played with a solid tennis ball and a stump as long as a bat and a little thicker than its handle. Wherever there was room enough wickets were chalked on the walls, and though balls were often flying in all directions no one ever got injured. It is no easy matter to defend ordinary wickets with a mere stump, so bowler and batsman soon change places and each gets a fair share of the leather hunting.

More use might be made of vacant plots in towns. Within a hundred yards of my door two such spaces, each half an acre in extent, have remained untenanted and unused for several years! Plenty of flowers and weeds, pots, kettles and hoop iron invite the children, but the palisades forbid.

In one of the spaces there are the remains of about thirty old cellars, open at one end, which would furnish scores of children with capital caves to play in while recapitulating ancestral history. We often hear of machinery being "scrapped"; surely the "scraps" might often be used for stocking these un-recognised playgrounds.

Even the open spaces we have are not as available for play as they might be. Many are mere patches of grass with a few inaccessible trees. Others are too trim with their flower-beds and notices of "Keep off the grass." Some of the beds might be left for the children to cultivate, and parts of the open spaces might be planted with shrubs, underwood or gorse.

Herbert Spencer,[2] writing of his own childhood, says: "There was a certain charm of adventure in exploring the narrow turf-covered tracks, running hither and thither into all their nooks, and now and then coming out into unexpected places, or being stopped by a deep, sandy chasm made by carts going to the sand pits. Then there were bluebells to be picked from among the prickly branches. In adult life it requires an effort to recall even faintly that more imposing aspect which the world has to children caused by the relative largeness of objects and the proximity of the eyes to things on the ground."

Spencer says nothing of the joys of "hide-and-seek," which he, having been a lonely child, had probably never played. More use might be made of our ornamental water. Too often there are notices "Fishing is not allowed." Why not? making one's own tackle is capital practice in adapting means to ends, and fishing cultivates patience, attention, and promptitude.

One has only to see the urchins lining the banks of the Lea and hear

[1] King's School, Canterbury.

[2] *Autobiography*, vol. i. p. 67.

their shout of triumph over the capture of some tiny roach to become convinced of children's love of fishing. A very small charge, sometimes remitted, would probably cover all expenses.

Then there is boating, which cultivates resourcefulness and that familiarity with the tricky element which breeds respect. Through boating the practice of swimming might be promoted, and the returns of the London County Council show that public boating can be made to pay expenses. Dr. Woods Hutchinson[1] says that for every pound spent on schooling ten shillings should be spent on play. This may seem rather extravagant, but only because there is no examination in, or Government grant for, all-round adaptability.

As to the question of danger; all human activity takes toll of human life. A child may be run over on his way to school, or when he gets there may very likely catch some infectious disease.

But we compel him to go there all the same. Much might be said of the moral value of co-operative games for older children, and of the need for development of *esprit de corps* in many of our elementary schools, but a reference to the Olympic Games must suffice.

These began as the sports of a single State, and were devoid of any political importance. Soon other States joined in, and presently the Greek colonies sent their champions from the mountains of Thessaly and even from Marseilles. All warfare was stayed while the heralds proclaimed "the truce of God" throughout the Greek world.

"Thus what at first was nothing more than a village bout became a bond of union for all branches of the Doric race."[2]

In conclusion I would ask, How can we, as an Association, best approach our local authorities on the question of making further and better provision for children's play?

[1] *Contemporary Review*, Sept. 1903. [2] *Encyclopædia Britannica:* "Games."

A SCHOOL FESTIVAL—SOME SUGGESTIONS.

By MRS. LAURENCE GOMME.

Delivered before the Exeter Conference, April 25, 1908. [*Abridged.*]

In dealing with the subject of the School Festival and its place in school life, I feel I had best begin by stating my belief in the necessity for the institution of an Annual School Festival as a means for bringing teachers and children into intimate touch with one another, in a closer and more natural manner than school life does. I shall then attempt to show in what manner the present methods fail, and to offer some suggestions as to what I should like such a festival to be and to mean to the children.

In our present schools very little real effort is made to show the children the connection of the school life and lessons with the life of the world outside them. The child, at any rate, does not perceive any such connection, nor in many cases do the teachers; this, I think, could be made the special function of the School Festival.

That school concerts and speech days tend to produce union in the school and promote good feeling and pride in the attainments of those members of the school who do well, is certainly the case; and school sports, cricket, football and rowing undoubtedly tend to produce that strong *esprit de corps* which makes boys as proud of the captains of the football team as they are of their greatest scholars. The traditions of an old established school are justly considered to have immense influence on the new-comers.

In our elementary schools this feeling of pride in their school, its past records and the achievements of its members, is not yet established. The School Festival might do something to alter this state of affairs.

My suggestion for a School Festival is founded on the part formerly played by periodical ceremonies in the lives of our forefathers; the importance attached to these ceremonies and their educational value to all the members of the community. There can be no doubt that the old-time festivals, whether religious or secular, served to bind the people together and to give them that interest in their common life which their occupations alone failed to give. Through alterations in method of thought and of work we have passed from the community stage and the festival spirit *i.e.* from the celebration of festivals in common; and although this may

may be the right development in the life of the adult, it does not, I submit, follow that children need do without this interesting stage, or that the festival spirit associated with communal life is not as much a necessity to them as it was at one time to us. Especially is this so in the case of young children, and for those being educated in our elementary schools.

The idea underlying the old village community was the necessity of co-operation in all events that concerned the members thereof. Domestic events, births, marriages, deaths, concerned the whole community. Death affected all, and was mourned by all. Social events, like marriage, good or bad harvest, affected all alike. A wrong done to a member of the community was resented by all; an honour conferred on one was an honour conferred on all.

The life of the whole community so impressed itself upon its members that the ceremonial dances, religious and secular, which were one of the necessities of the community in its original stage, became the pastimes of the people when the village community was broken up. Their previous significance and importance was forgotten. They continued for a long period to ornament the social gatherings of adults, and then passed into the play of children, surviving in those line-and-circle games known as children's singing games; for these old dramatic games are probably the last remnants of the beautiful festivals of a more primitive age. The child in his early years is in the village community stage of civilisation; and children at play, like their forefathers, need, for full enjoyment, to play as members of a community, and not as isolated individuals. Our games of football and cricket are games which have been capable of the development they have undergone because of the fact that their early prototypes were sports for a community, in which a member of one side or community had the greatest interest in aiding and helping his own side against all opponents. His interest was not individual but communal. This feeling probably accounts for boys being prouder of their athletic heroes than of their scholars. The "sports" boy is brought into closer touch with the community of boys than the other. His success is the immediate concern of the whole number, while the other works alone, and scores for the school only in the eyes of the authorities.

Granting this position, it appears to me that a school festival in which there is community of interest, in which all could and must take a part, is the thing that is needed in our elementary schools to knit the whole force or body together—a festival in which all the work of the school, and the work done outside by adults, can be embodied in play, something which begins with the children and can be continued from year to year with added interest.

We are reviving in our schools and various girls' clubs the singing games, folk-songs and dances which have come to us by tradition; for we find that they have a great interest for all children and young people, and appeal to them in many ways, besides being an admirable means of giving physical exercise. If these games, dances and songs appeal strongly to a section of our people it must be because of something inherent in their nature; they are communal in origin and tell stories which appeal to the imagination, because they contain allusions to social life, they are also intensely dramatic in character. There is no reason why these old amusements should not form the basis of a school festival. With them we might revive the May-day and the harvest or summer, autumn and mid-winter festivals, in all of which these songs and dances originally played a part.

To begin with, the children and teachers must understand and approach the festival in the same spirit they prepare for a concert or examination; that is to say, the festival should show results of the work of the whole community, the difference being that the festival would combine work done in and out of school, and would be looked forward to by all as a pleasure; it would be the time for sports and pastime—of work in play and of play in work.

An idea of mine is to start a Spring Festival in every school, and for this Spring Festival to incorporate both indoor and outdoor work—May-day observances, dances and songs, with primitive celebrations of domestic cleanliness, feastings, etc.

The first step necessary to produce a Spring or May Festival would be to teach children in school what Spring does for us. It recreates the beautiful in nature; it gives us different surroundings, through the gradual change of the dull colours and quiet of winter to the bright colours of spring flowers. It suggests naturally to children the making of everything clean and bright. A child's imagination is easily touched by such great changes, and it is important that we should preserve this sense. A child easily believes the spring to be young and joyous, longing for activity, and the autumn as getting old and tired, longing for rest, which the winter in its turn is to give. He will understand his own desires for outdoor life, and his longing for activity in the spring, if he is taught by a May-day Festival that it is natural for him so to feel; and then he will rejoice in the return of spring as the birds, trees and flowers do. Having got the idea that spring means a recreating of everything in nature, it will be easy for the child to understand that, to make himself and his home clean and bright, after the manner of all animals, is a necessary and delightful task for him also. Clean clothes, clean houses, clean cooking utensils, would be one of the beginnings of

my school festival. I should like to see in each village a small cottage of four or five rooms handed over to the children to be made clean and fit for festival time. The cottage must have been lived in, and be soiled and dirty from the winter's use, for no children will ever appreciate cleaning something already clean. Into this the children who have chosen to do cleaning will go. Each room will be thoroughly cleansed—floors, walls, windows and furniture (if any), and the cottage should also be the home of the festival while it lasts. When the cottage is cleaned, children who are learning to cook will come in and make some simple cakes and little dainties they have been learning to do during the winter; laundry work will also be necessary, for girls should wash, bleach and iron their own light articles, and prepare these for use for festival wear. Where there is a school garden, some simple things, like radishes and cress, could be grown to add to the feast, and the little gardeners would cultivate these and have them ready and the garden-ground in good order for the feast. Green boughs and spring flowers should be gathered and the house decorated therewith. Other parts of the festival should deal with any other work which has been done at school—carpentry, whitewashing, etc.—could also be made use of. Then, when all work is done and the house made beautiful, a feast follows, the preparation for which is made and carried out by children, and the house should be open to all to see, and to this each child should invite a parent, thus bringing together all connected with the school—teachers, children and parents. This is the domestic side of the festival. Another part of the festival should deal with the history taught during the year in dramatic form, for children delight in acting scenes in which real people have played a part. Their knowledge and love of history would be intensified, and their speech and accent improved. Simple costumes of the period, designed and made by the children in school, would be worn. This is not necessary; but it is effective, and helps the knowledge of a special period.

Geography would be represented by outlines of the country, town or village where the festival is held, or one indicating the play scenes, being drawn on the ground, special features of the locality such as churches, market places, village greens, school buildings, railway stations, and the festival house being marked; cardboard buildings and trees and clay models of animals and people will add to the interest of these plans and give scope for boys' work. The difference between the present time and an earlier can be taught by the town before the railway and after. This will excite children's interest in the place where they live. Local events of importance should be used, and a visit paid by the children to places of historical interest in the village or town.

Many villages and towns possess beautiful churches and buildings of historical and architectural interest. These should be shown to children, to encourage a feeling for the beautiful in buildings. The part played by these in historic scenes should be embodied in the festival. Museums should be visited for local and special objects. Local customs should be used, and the memory of some great man or woman connected with the place honoured.

In all the festivals the singing games, simple songs, and fairy tales, for the younger children, folk-songs, morris dances and country dances would be a special feature. Simple court dances, such as the minuet, would be used as adjuncts to the historical scenes.

At all these festivals the simple songs of the great poets, music and dramatic literature, would be used. The works of the great writers would become familiar to the children from a different point of view. The festivals should be arranged from time to time to show definitely something past or present which has had an influence in moulding the lives of our ancestors, and which has lessons for us to-day; and therefore the best in art and literature of a simple character would be bound to find its way among the people; they would show the value of tradition in work and play, give examples of restraint, and encourage all to take an interest in, and to do something for the pleasure and benefit of the community. The success of the festival would depend on the work of the school, and the spirit in which it was viewed must arise out of the work done by the various sections of the schools during the year. Everything learnt at school should, as a matter of course, come in at one or other of the festivals.

The festival should be regarded as an important part of the children's education, and all children must take part in it. The elder children should be entrusted with the work of carrying out in detail the scheme of the festival arranged by the head mistress and the teachers. While continuity in idea would be necessary, the festival should vary from year to year. I would strongly advocate one part of it to be connected with nature—especially with the great nature festivals of spring, summer or winter.

The School Festival may not be easy of success at first. It will require working through the different departments, and the spirit of the festival must thoroughly pervade the school. For an entire school to take part, each class must do something which will fit into one general scheme; but materials for spring and Christmas festivals are abundant, and with songs, dances and processions, a simple one should not be difficult to arrange.

A part of the festival should, wherever possible, take place in the

open air, and a part in the "house made beautiful." Wherever possible a village-green should be used, partly because of the part it *has* played in the past history of the people, and also because it will teach the children the reasons why the land was set apart, and the importance of retaining the greens and parish lands for the use of the people; it will recreate the interest of the people in the use of their own land.

One result of the festival would be that children will learn to know something of the place in which they live, and the part played by that place in the history of the country. It is not only more interesting but more important for children living in Exeter, for instance, to be first of all thoroughly acquainted with that city and the place it occupies in the history of the English people, than to have a limited knowledge of many places which to them may be always far off, and the history of which they do not connect with their own place and themselves.

Festivals would be capable of great possibilities. They can vary from a simple afternoon of play and song for the little ones to an elaborately prepared scheme representing the history of a town in which all the schools in that town could take a part. They would vary with the means and material at hand, and with the needs of the children. Once a year, however, there should be a Nature Festival for the little ones everywhere, or better still, one day at the end of each term to prepare for the larger yearly one.

The question of space and suitable buildings is a serious one in our country. The festival must be an open-air one, with adjacent buildings for use when necessary. In towns, the school buildings would probably be the only ones available, a portion of a park being used for the open-air parts. Perhaps the needs of the School Festival, if started and found successful, would give us one of our present great needs, a garden playground for all our schools.

The children should learn that the schools are their property while they are children; that they belong to all children in common, because they are the homes of the children during an important part of their lives; that the county councils, the borough councils, the district councils, the managers and the committees are trustees appointed to direct matters and to manage for the children. This is the foundation for the good spirit which will lead to common ideas of protecting and caring for what is their own, of believing in the fact that they have an interest in all that surrounds them, and that they will some day be called upon to exercise for other children the trust now being held for them. "Education Day," to commemorate the giving of "free education" to the nation, should be an event celebrated.

I suggest a programme for the foundation of the three important festivals, spring, summer and winter, in brief outline :—

1. The Spring Festival at the beginning of the summer term. Children to go into the country to collect branches of green and flowers with which to decorate their school-rooms. Local names and knowledge of characteristics of plants learnt and utilized. House cleaning, with washing and bleaching and preparation of linen, cake-making and preparations for domestic portion of festival, garden work and building and carpentering for boys. Outdoor festival, consisting of suitable singing games, for the little ones ("Here we come up the Green Grass," etc.); "folk-songs" and "May-pole," and other suitable dances for elder girls.

2. Autumn Festival, to be held at beginning of autumn term. The foliage and flowers of autumn to be collected and treated as for spring.

Lammas dances and ceremonies to be arranged, to say good-bye to summer.

Harvest ceremonies, collecting of grain, its use for food and drink, "taking home the last load," harvest suppers, songs and rejoicings; bread and cake made from the first corn cut, and local customs connected with harvest revived; the uses of straw and making of objects from it. The storing of food, making of jams, and other preparations for the winter season.

Children's singing games ("Oats and Beans and Barley") and other harvest games, folk-songs and dances.

(3) Winter and Christmas festival. The sleep and rest of winter; frost and snow to be symbolised in play; storing of wood and other fuel for fire. Fire festival. Importance and danger of fire. Preparation of winter food, Christmas puddings, mince pies, sausages, bacon, nuts and winter fruits for Christmas feast. Festival to consist of old Christmas games, and play of a warmth-giving nature, indoor and outdoor. Mummers' plays. Gifts made for our poorer neighbours. Rest from labour.

This is but a slight sketch, but, with what I have previously stated, should be sufficient, I think, to indicate how far the School Festival will reach and what it may mean.

I am aware that objections will be made to the festival on the ground that it will mean more work for the teachers, and that upon them will come the preparing, carrying out, and the burden of the whole thing, and the question will also be asked, Is it worth while? Is the disturbance in teaching more important things made up by the gaiety and pleasure gained, and also, what about the cost? Is that to be provided by the parents, or, in the case of the county schools, from the rates?

I think the School Festival will quite be worth the extra time and

trouble given to it by the teachers, and any extra expense will be justified by results.

I also consider the "disturbance" *will* be worth while, and that the festival will teach the more important things of life, and that nothing of value need be disturbed—only, perhaps, some subjects differently arranged. The justification for the festival depends upon the necessity for bringing school life into connection with the larger life and larger ideas of adults, for making education something more for children and teachers than a preparation for earning a livelihood in the future, or of spending so much time every day in imparting knowledge which is often regarded as useless for that purpose. Many of the voluntary associations would, I believe, help in the work of the festival, and helpers would, I feel certain, not be diffident in coming forward and assisting the teachers.

LECTURES TO BE DELIVERED BEFORE CONSTITUENT SOCIETIES FROM OCTOBER TO JANUARY (1909).

Birmingham.

Oct. 20.—The Relation of Psychology to Education.
J. H. Wimms, Esq., B.A., B.Sc.
Nov. 23.—Play as a Factor in Education. Dr. Slaughter.
Dec. 15.—The Child's Vocabulary. Prof. John Adams.
Jan. 19 (1909).—Beginnings. Miss C. Herford.

Cheltenham.

Oct.—The Preparatory School in relation to the Kindergarten. Miss Herford.
Nov.—Drawing in Infants' Schools. Miss K. Phillips.

Edinburgh.

Oct.—Inaugural Address. Prof. J. Arthur Thomson.
Oct. 30 and 31.—The Art of Telling Stories to Children. Miss Marie Shedlock.
Dec.—Lecture by Professor Findlay, M.A.
Jan. (1909).—Lecture by T. S. Clouston, M.D., F.R.C.P.

Exeter.

During the Autumn, members will have the opportunity of attending a course of 12 lectures (under the auspices of the Cambridge University Lecture Committee) by Miss Alice Ravenhill, F.R.San.I., on "The Physical Development of Children." The Rev. Prof. Parry, B.Sc., B.A., will open the Session with a lecture on "The Social Consciousness of Children," and lectures are promised on "Spinal Curvature, as induced by Defective Seating in Schools," by Mrs. Harvey, and on "Auto-intoxication, the Cause of Fatigue," by Mr. J. L. Sagar, M.A. Dr. Cripps-Lawrence has also promised a lecture.

Halifax.

Oct. 10.—The Place of Play in Child Life. Miss Alice Ravenhill, F.R.San.I.
Dec. 16.—Some Defective Children. T. H. Hunt, M.D.
Jan. 20 (1909).—The Meditations of an Infant. S. G. Moore, M.D., D.P.H.

At a meeting of head teachers and the Executive Committee of the Halifax Society, the following resolution was adopted :—

"That the Head Teachers of each School or group of Schools (as may be decided

by the teachers of the Schools concerned) be asked to organize one or more Sectional Meetings in connection with the Child-Study Society on the lines now suggested."

This resolution, together with the following suggestions for Sectional Meetings, was sent to the head teachers of each school. The Society undertook the necessary arrangements for use of room and printing.

For Establishment.

Form Sub-Committee from willing members of Staff. Invite two or three parents to act on Sub-Committee. Nominate a parent to act as Secretary. Draw up a programme for winter session to contain as many items as the Sub-Committee shall decide. Appoint a Chairman (a parent?). Meetings should be of an informal character. Only a small part of time should be taken for the reading of each paper; the rest should be devoted to questions and discussion. The paper might be divided into sections and the discussion take place on each section. Length of meeting might be conveniently limited to one hour—8–9 p.m. Invite two or three medical men in the district to co-operate. Avoid dates fixed for full meetings of the Society.

For Topics.

Hygiene:—Precautionary measures for prevention of epidemics; simple treatment of ophthalmia, measles, ringworm, whooping-cough, diphtheria, etc. Isolation in infectious disease. Chief cause of disease—insanitary conditions. Importance of frequent washing of hands before meals. Detection of abnormalities. Cleanliness of person and of clothes. Care of teeth, eyes, hair (girls especially). Ventilation. Importance of plenty of fresh air, good food, water, and play, in building up a healthy nation. *Educational*:—Punishment, children's lies, acts of disobedience, child's world not our world, education in home, parents' responsibilities, environment, play, importance of finding outlets for child's activity, games, folk-songs—their value in training the young. Generally to endeavour to interest parents in systematic observation of their children and obtain their co-operation and sympathy with the teachers' work.

London.

Oct. 15.—Introductory Address on the Relation of the Curriculum to the Development of the Child. C. W. Kimmins, D.Sc., M.A.

Oct. 29.—Some Results of an Investigation into Hours of Sleep among English Elementary School Children. Miss Alice Ravenhill, F.R.San.I.

Nov. 19.—Outdoor Schools (Illustrated by Lantern Slides). F. E. Rose, Ph.D., M.A.

Nov. 26.—Physiology of the Child. G. Eric Pritchard, M.A., M.D., M.R.C.P.

Dec. 3.—Education and Recent Studies in Heredity. F. H. Hayward, D.Lit., M.A., B.Sc.

Dec. 10.—The Educational Revolution and some Hints for the Future. James Kerr, M.A., M.D., D.P.H.

Manchester.

Oct. 9.—Herbart. H. Thiselton Mark.

Nov. 13.—Froebel. Miss Wroe.

Dec. 14.—Prof. Dewey. Miss Grace Owen.

Jan. (1909).—Lecture by Prof. Alexander.

Lectures delivered before Constituent Societies, last Session.

Cheltenham.—Religion in Education, Prof. J. H. Muirhead; Morality as a Subject of School Instruction, Miss Jessie Edwards; Education of the Defective Intelligence, Dr. J. H. Garrett; The Study of the Child, Dr. H. Cripps-Lawrance; Romance, Miss Mary Louch.

Edinburgh.—The Development of the Self, Miss Margaret Drummond, M.A.; The Child and the Imagination, Mrs. R. Annand Taylor; School Gardens, F. W.

Michie, H.M.I. ; Child-Study in relation to the Training of Teachers, Dr. Morgan ; The One-room Child, with special reference to 72,000 Glasgow Children, Dr. Leslie Mackenzie ; Report on Practical Work—Study of Children's attitude to places of interest (Edinburgh Castle).

London.—Introductory Address, Sir Edward Brabrook, C.B., V.P.S.A. ; The Education (Administrative Provisions) Act in Relation to the Inspection and Treatment of Teeth, W. T. Elliott, D.D.S., L.D.S. ; Congenital Aphasia (Word Blindness and Word Deafness), C. J. Thomas, M.B., B.Sc. ; Anthropometry and Physical Development, Frank C. Shrubsall, M.A., M.D. ; The Downfall of the Dogma of Formal Training, T. H. Hayward, D.Lit., M.A. ; On the Mechanism of Speech and Stammering, M. Friedeberger, Ph.D.

Halifax.—Spare the Rod and ——, J. W. Eden, B.A. ; Growth and Fatigue in the Child, Dr. Dora Mann ; Baby Play from 2 to 5 Years, Mrs. Alice Smith ; What makes Work interesting to Children? H. R. Starke Jones, B.A. ; Individuality of the Child, Dr. Howie Muir ; Social Heritage, Miss Ogden ; The Bearings of Physiology in the Education of the Young Child, Dr. Ralph Crowley (Bradford) ; The Problem of the Pubescent, J. Arrowsmith.

REVIEWS.

Cradle Tales of Hinduism. (M. E. Noble—Sister Moedita.) 5*s.* net. (Longmans & Co.) pp. 343.

A charming collection of "genuine Indian Nursery Tales" from the great epics which are such important culture material in native Indian life. S. Y.

Chapters of Popular Natural History. National Society. 1*s.* 6*d.* pp. 223.

These are some of Lord Avebury's well-known lectures in Natural History, attractively arranged as an advanced reader for schools, elementary and secondary. S. Y.

Hygienic Physiology. Walter M. Coleman. (The Macmillan Company, New York.) 3*s.* pp. 266.

A practical, clearly-written book which has been reprinted several times since the original impression in 1905. The ill-effects of alcohol and narcotics are made very prominent. S. Y.

A Cycle of Nature Study. By Miss M. M. Penstone. pp. 392. Nat. Soc. 3*s.* 6*d.*

This book is written by one who, besides being an enthusiast for her subject, is also a clever teacher with a happy gift of interesting exposition. In addition to all the information that any teacher of young children is likely to need, there are to be found many suggestions which should go far to make the lessons interesting and effective. The book can also be warmly recommended to parents who wish early to introduce their children to some of Nature's secrets. T. G. T.

THE LIBRARY.

The collection of books and pamphlets formerly composing the library of the Childhood Society has been added to the library of the central council by the London society, and as soon as the necessary cataloguing has been completed these will be available to members of all constituent societies.

A list of the books sent by publishers and others during the year will be given in Part 4.

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Child-Study.

The Journal of the Child-Study Society.

THE APHASIAS OF CHILDHOOD AND EDUCATIONAL HYGIENE.

By C. J. Thomas, M.B., B.Sc., D.P.H.

Delivered before the London Society, March 13, 1908.

Modern knowledge of the organisation of the brain, gained chiefly through the study of the effects of disease, has thrown considerable light upon the development of the speech faculty in childhood. It has made clear many dark places and has given us a means whereby many processes in elementary education can be reviewed and corrected where faulty. It has also thrown a flood of light upon individual differences in children formerly most puzzling. It is evident therefore that an acquaintance with this knowledge must prove of great use to teachers.

In normal educated persons there are four chief speech centres on the cortex of the brain *upon one side only*—in right-handed persons on the left side, and in left-handed persons upon the right side.

In diagram 1 these centres are shown as follows :—

(1) The Auditory word centre (A) upon whose development and integrity depends the recognition of the meaning of words heard; (2) The motor speech centre (M), which is controlled by the first, and upon which depends the memory of how to produce words in speaking. These two centres (A) and (M) form the primary speech couple.

(3) When the child learns to read the Visual speech centre or Reading centre (V) is formed, by the activity of which words seen are recognised and nerve currents set in train which awake the sound memories in the Auditory centre, and so enable one to understand written or printed matter (see Diagram 5); and lastly (4), the Writing centre (W) wherein are stored the memories of how to produce words in writing. This last centre is directed and controlled by the Visual word centre, just as the Motor speech centre (M) is controlled by the Auditory speech centre

(A). (V) and (W) may be termed the Secondary speech couple. The lines in the diagram with the arrows represent the usual channels of flow of nerve currents, while the dotted lines represent unusual channels of connection which sometimes exist between the centres.

Now perhaps it would be best to take the centres in turn and learn a little more about each in detail.

The Auditory Word Centre (A): This is the most important and normally the *primary* speech centre; in most it remains the *dominant* centre throughout life, so that in every operation of the mind involving the use of words this centre springs into activity. Words are the symbols of ideas, and all the memories surrounding and composing an idea of something come into relationship with the particular word symbol standing for the idea through the auditory word centre; this relation is shewn in the diagram by the connections of the circle (I);

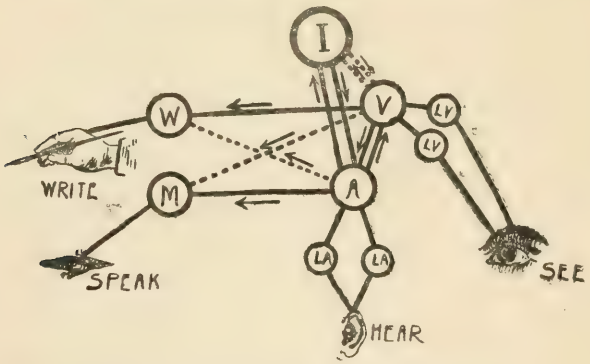

Diagram 1.—Centres of Normal Speech.

(*After Byron Bramwell.*)

(A) Auditory word centre. (V) Visual word centre. (M) Motor speech centre. (W) Writing centre. (I) The group of memories associated with any particular word revived and forming the idea which the word represents. (LA) (LA) Lower hearing centres. (LV) (LV) Lower visual centres.

but it must be clearly remembered that there is no justification for the belief in a localised centre for *apperception* or *ideation* in the sense that there are lower speech centres; it is represented thus in the diagram for simplicity's sake; (I) must be looked upon simply as a *conventional representation* of the whole of the memories and associations which are connected for the time being with the particular word symbol revived in the auditory centre. In the developing child the auditory speech centre is being actively established during the period from *six months*

to eighteen months, and more actively in the latter half of this period. Recurrent sensations are associated with the recurrence of single words or phrases; the child sees a round coloured object and hears his mother say it is an orange; this occurs over and over again, so that the word comes to mean to the child the revival of memories of the fruit; the fruit, in the same way, revives the memory of the word orange; the sight of the orange is reinforced by sensations of feeling it, of smelling it, of tasting it; the child sets its teeth in the peel and the acrid sensation resulting also enters into the complex; all these memories form the child's idea of an orange, and any one of them may revive the word standing for it. In this way the connections between (A) and (I) are formed.

Diagram 2 shews the condition of the child's speech centres at this

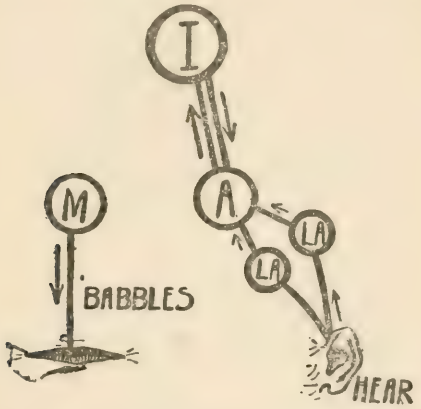

Diagram 2.—Speech Centres in Fifteen-Months-Old Child.

stage. We now understand how the auditory word centre remains in the most intimate relation throughout life to the ideas for which words stand as symbols—*why silent thought is accompanied by faint revivals of the sounds of words, and why in expressive language the auditory word centre first takes the lead.*

The Motor Speech Centre.—Up to the age of eighteen months or so there is no connection yet formed between the auditory and the motor speech centre (see diagram 2); but the cells in the latter have already been practising and making ready for their organisation by spontaneous *babbling*. After eighteen months, as a rule, and very quickly once the process is started, the connections between these centres are formed and the child begins to utter the words whose

meaning he already understands; the auditory centre becoming the driving and controlling centre as in diagram 3.

Now let us see what happens when any injury or failure of development occurs in these centres.

First the *auditory word centre;* if this be destroyed, we should expect to find words heard are no longer understood; here we get our definition of *word-deafness;* a person becomes, in respect to his own language, exactly in the position of one who listens to a foreign tongue, hearing but not understanding; in most people such an injury would also involve the loss of ability to use language altogether, because the path from (I) to all the other centres is also interrupted (see diagram 1). Motor speech is also destroyed, because its centre depends upon the auditory centre for its incitation. In *strong visuals*, however, it may

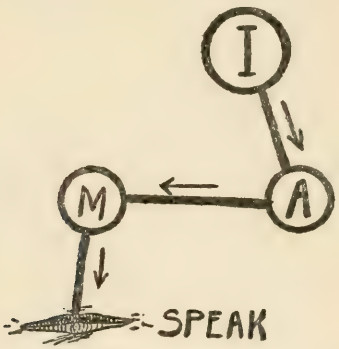

Diagram 3.—Spontaneous Speech.

happen that reading may still be possible, and even speaking, as may be understood by an examination of diagram 4.

A case is related by Trousseau in which a lady, whose intelligence was unimpaired, lost the power of understanding what she heard; she continued to speak but used irrelevant words. She rose with an air of kindness to receive a visitor, and pointing to a chair, exclaimed, "Pig, animal, horrible beast"; whilst her son-in-law, who knew what she really meant, explained to the gasping visitor, "Madame invites you to be seated."[1]

Individuals vary in capacity for brain organisation, not merely as a whole, but for each faculty; some people remember and think chiefly in auditory terms—they are "strong auditives"; others in visual terms—they are weak "auditives," but "strong visuals"; others again remember by kin-æsthetic memories—they are motor-minded. But in every

[1] Bastian. *The Brain as the Organ of the Mind*, p. 633.

faculty we find all kinds of variation, from extreme facility to entire absence of power of organisation. If this be true, we ought to find some children who are unable to organise their auditory word centres although otherwise intelligent, and unable, though they hear, to store up memories of the meaning of words heard. We find, in point of fact, that there are such children; it is these children who are termed congenitally word-deaf. They may still receive by appropriate training language symbols in terms of other centres. The dictum was that if a child hears, but does not speak, he is an imbecile; it by no means follows; he may be merely word-deaf. In almost every class for the deaf you will find one or two such; they hear quite well, although not so acutely as most normal children do with their better education of the auditory centres, yet much more acutely than many normal children who yet develop an auditory word centre.

Deaf teachers noticed them, but gave very unsatisfactory explanations of their waywardness. One eminent French teacher of the deaf states that they do not understand because they are too lazy to do so, ignoring the fact that these same children performed the more difficult tasks of learning to read and write. Dr. Kerr was the first to describe and properly explain such a case (Kerr, *B.M.J.*, 1900). Here is a case of the condition which I have described :—

A. B. A bright, intelligent-looking, well-developed boy of eight years. Previous history : attended infants' department of ordinary school from age of three until that of seven, during which time he never attempted to talk. He was taken by his mother to a hospital, where he was examined for adenoids, but these were not found. At seven he was brought to me (May, 1903) and was admitted to Gloucester Road Special School, and I made the following note : "Aphasia, hears but does not talk. Looks intelligent." In July, 1904, he had learnt to name objects pointed to, *e.g.*, "book" and "pen." He is very clever with fingers. Family history : Father's brother, no speech until five. Own brother, now aged ten, no speech until five. Sister, now aged five, does not speak. Present condition, healthy. Is not a mouth-breather; there is no discharge from ear; palate well formed. Hearing : hears readily words spoken more quietly than ordinary conversation, and will repeat them with correct intonation but incorrect pronunciation. Hears a watch readily. Understands no words. Sight normal. When speaking keeps his eyes upon one's lips and seems to understand a few nouns by lip-reading. Speech : Repeats after me "Get me a pencil" as "Det me a pentil." He is able to name many objects shewn him. His vocabulary is constantly increasing, but confined to substantives. He calls an inkpot a "basin." Educational attainments : In spite of his handicap he has learnt to read such words as "cat" and "dog." Can do small arithmetical sums and is clever at all finger-work; can draw well both from copy and spontaneously. Shewn a picture of a house and asked to point out the "roof" he cannot do so, but if it is pointed out to him, he immediately says "roof."

It is seen that such cases correspond with deaf children in all but this—that they can hear and can utilise their hearing to guide and

control the motor speech centre; the speech differs from that of the stone-deaf child, in that pitch is perfect, or nearly so. Diagram 4 gives the speech centres as they are developed in such a case.

[The same use of lower hearing centres (L A) (L A) to control the motor speech centre is shown in the condition termed *echolalia*, which is found in some imbeciles; these children repeat correctly a phrase heard without appreciating the meaning of the words; the rapidity of the reaction is most uncanny, being much quicker than is possible if the impulse first has to pass through the auditory word centre.]

Motor speech centre: If this be destroyed there is loss of the power to speak, although language is still heard and understood. Most cases of bad pronunciation or imperfect speech in children depend upon imperfect education of this centre or congenital difficulty in its organisation. The affection *Idioglossia*, in which the child appears to have a language of its

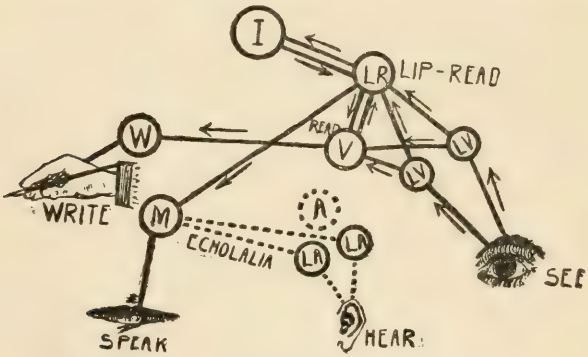

Diagram 4.—Congenital Word-Deafness.

own, is only an exaggeration of such minor conditions. They generally improve at the age of eight or nine, though some persist.

Occasionally we find cases of motor aphasia in a child comparable to the cases of word deafness.

The Visual Word Centre.—This centre to the educationalist is the most interesting perhaps of them all. At first when the child commences to learn to read, he is usually taught the letters; this is a difficult process, because there is nothing in experience to which they can be attached; they are to the child meaningless symbols. Soon, however, as the child learns to read, a new centre for words *only* is formed at a distance from the ordinary visual centres where objects and letters are seen and recognised; this new reading centre (V) is in close proximity relatively to the auditory word centre, and it is formed because the visual image of the word as a whole can become the means of reviving

the auditory word image, and so enter directly into relationship with ideas already present in the mind.

In persons who are "strong visuals" the visual word centre is capable of entering into direct connection with the idea represented (see dotted line in Fig. 5); their reading time is much quicker than that of those who are strong "auditives."

There are many facts which to my mind go to show that in educated people the visual word centre is always of great importance, even in those who are not strong visuals.

Thus in that form of partial aphasia, familiar to most, arising from fatigue, although a particular auditory word image cannot be evoked,

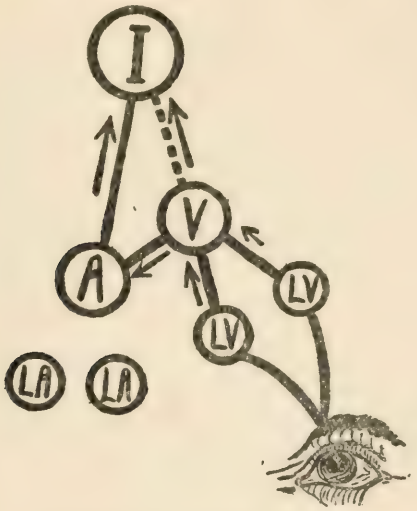

Diagram 5.—Silent Reading.

and one is "at a loss for a name," there is often a faint revival of the visual word centre, and one can tell the first letter of the word and sometimes its length or number of syllables. Again, if we look at words which have the same sound but different spelling, it is clear that the visual form of the word exercises a great influence; the visual image either "carries through" the auditory word centre its own distinctive character, or else, as is more likely, connects straight away with the idea. Again, the visual word vocabulary does not coincide with the auditory, yet there is no confusion in reading.

The Writing Centre is the least well-defined; it is under the control of the visual word centre, and if the latter sends across an impulse the particular word is written as a whole; sometimes the

impulse seems to travel along the wrong line, and the wrong word altogether is written ; this curious mistake, found sometimes in correcting dictation exercises, is termed *paragraphia.*

Let us now see what happens when the *visual word centre* is destroyed.

In the first place the power of reading words aloud is lost, although letters may still be seen and recognised ; the power of understanding words seen, *i.e.*, of silent reading, is also lost. The power of writing to dictation also goes, as well as spontaneous writing, unless—as rarely occurs—the auditory word centre is capable of setting in action the writing centre ; but the power of speech and of understanding words heard is unimpaired.

This condition is termed *word-blindness.*

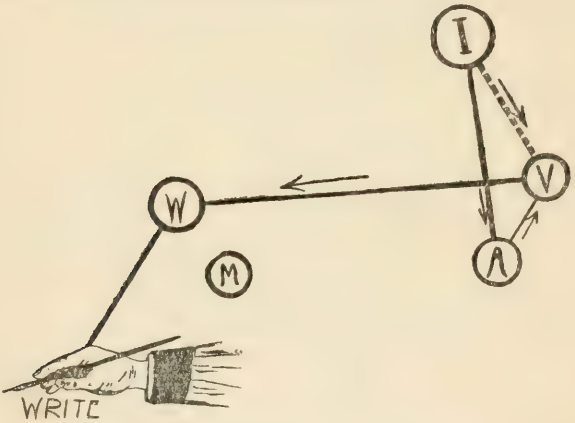

Diagram 6.—Spontaneous Writing.

Many cases of acquired word-blindness have been put on record, and there are some cases in which, while power to read words as wholes has been retained, the power of recognizing single letters has been lost.

But most interesting to us are the cases of *congenital word-blindness* which are not at all infrequent. There are many children—about 1 in 1,000 of all children—who are quite unable to organize their visual word centres, and cases in which there is considerable difficulty of organisation are more frequent.

Here are two cases I have recently seen :—

Ethel S., aged 12, has been to school since the age of three. She is a healthy child, quite intelligent and quite up to the average in all things, except reading and associated subjects. She invariably obtains full marks in arithmetic and needlework, and she has exceptional ability in singing. She can read very poorly indeed ; she

arrives at the meaning of a very few words by slowly spelling out ; she reads "But how do you know this" as " But now go—know with " ; she read "know" and "but" by spelling them out rapidly. Her dictation is invariably marked by her teacher as "shameful" or "rubbish" ; it is a medley of graphic gibberish ; yet she can read off and manipulate numerals with consummate ease ; dictated one hundred and forty-three thousand three hundred and eight, she writes down the figures correctly without hesitation, but she cannot even write the *word* "one." She can transcribe slowly, but fairly correctly ; she can draw fairly well, and drew for me her idea of a house, in which it is interesting to note that she put in the figures 86 above the knocker on the door. One more interesting fact is that, although she can read several letters and Arabic numerals especially with ease, she is, in addition to being word-blind, unable to read musical notes ; both these two faculties being associated in normal people with special visual centres in direct relation with corresponding auditory centres.

Another case seen during the past week is Thomas A., aged 12, in a special school. At eight years of age he is described as being a healthy lad, well pleased with himself, and with the idea of coming to a special school. Nutrition good. Head 19 inches in circumference ; palate normal, slow response, pose nervous. On December 19, 1904, he is noted by me as being of prognathous type with much fibrillary twitching of the muscles. Muscular memories good ; visual memory reinforced by motor ; auditory memory very poor. Writes name readily : spells it out with difficulty. In January, 1906—Vision=6/9. Has improved generally ; still reinforces visual by muscular memories, tracing out letters with his finger. March 8th, 1908.—Aged thirteen. Now adolescent, but still nervous. Still traces out letters with tip of finger ; no reading of words otherwise ; is a smart boy generally ; already partially earns his living by selling papers, and with lightning rapidity calculates the margin of profit upon any number of halfpenny papers. Can read and manipulate numerals readily.

The last case is interesting, as showing how reading may be accomplished in some of these cases who are of the motor type by kinæsthetic (*i.e.* muscle) memories. His dictation is peculiar, he drives (see page 106) his writing centre by the auditory, and we have the curious errors which motor types of memory often give of transposition of letters in words : " was " for " saw," " rams " for " arms."

A very interesting point is the ease with which word-blind children understand and manipulate Arabic numerals. The condition is much commoner in boys, but I have found it present several times in girls.

Although the *visual word centre* is incapable of organization, yet it often occurs that these children are strong visuals in memory type ; they remember and describe what they see accurately, and are often very good at drawing from memory.

Congenital word-blindness is much commoner than word-deafness, and as there is often no disturbance of the general intelligence it is much more easily studied.

It is markedly hereditary in character.

The treatment of word-blindness consists in aiding the understanding of visual symbols by use of other memory centres and especially

if possible, by muscle memories ; *e.g.*, reading with the tip of the finger, as in the case of Thomas A.

But in marked cases the attempt to teach reading too often proves an impossible task.

There are many other memory centres which show variations in capacity for organisation ; for instance, musical memories are associated with a special centre in the auditory region quite distinct from the word centre ; musical memories may alone be obliterated from the memory by disease and we get all gradations of variations in original capacity, from musical prodigies down to tone-deaf children who are

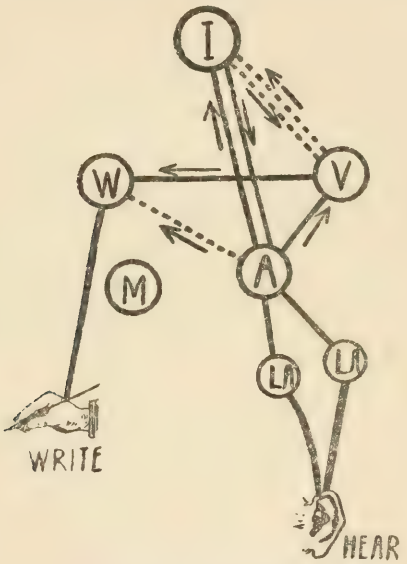

Diagram 7.—Dictation.

very frequent. Similarly in colour we may have intense appreciation of colour, and all variations down to those who are quite colour-blind.

Dictation.—Teachers often complain of the irksomeness of the task of correction ; but armed with a knowledge of speech centres his mistakes teach one much about the mental constitution of a pupil, and the correction becomes a positively entrancing occupation. In dictation three of the word centres must be revived in order, namely the auditory, then the visual, and finally the writing centre. Mistakes arising in any one centre have definite types. Here are four papers taken from a single class during the past week :—

1. Thomas A. That morning he " was " a " womman what " a cat in her " rams." He asked her if she " wold sel " him the " anile."

2. Robert C. That "mornong" he saw a "women" with a cat in her "ares"; he "arket" her if she would sell him the "amelem."

3. Percy T. That morning he saw a woman with a cat in her arms. He "arsked" her if she "wood sel" him the "amimal."

4. William W. That "moring" he "swo" a "wnoynes" with a cat in "haer sheer," He "sis" her if she "worlt sels" him the "nulen."

No. 1 I have already dealt with; it gives the type of *transposition* which is found in strong motors.

No. 2 is from a boy who could read very well, and shows *substitution* of similar letters—a form of paragraphism due to weakness in the connection between visual and writing centres; the word "asked" is spelt as "arket," "arms" as "ares."

No. 3 is of a dominant auditory type; he writes "would" as

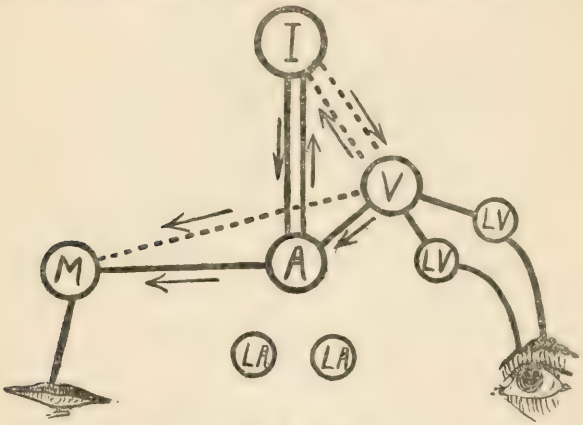

Diagram 8.—Reading Aloud.

"wood," "asked" as "arsked," the badly educated auditory centre betraying itself in the latter word.

No. 4 is a word-blind boy, extremely self-reliant, capable and normal in other respects; he writes graphic gibberish—"wnoynes" for "women," "haer sheer" for "her arms," etc.

Learning to Read:—There are several methods in vogue of teaching children to read. They may be divided into the visually *analytic* and the visually *synthetic*.

From our knowledge of the physiology of word centres, we have gathered that the essential business in learning to read is the formation of a visual word centre in which the word is seen as a whole, and not as composed of letters, and thus at once enters into relationship with auditory word symbols already present (see diagram 8).

But most of the "systems" in use ignore this entirely, following the

visually analytic method of breaking words up into letters and recombining them in motor or auditory centres, leaving the essential part—the development of the visual word centre—entirely to chance.

In the older methods the letters were first learnt with great pains; they appear to be learnt by the young child as muscle memories to a great extent, and familiarity with the form of the letter is gained much more quickly by the child if he makes the letters with straight and curved strips of wood, handles and nurses great carvings of them, and traces them out in sand with the finger. This explains why children so often mistake for one another b, p, q, and d; also m and n, and n and u; M and W and N and Z; each of these groups require identical muscular actions to produce the letters. Again, at the beginning, children show the transpositions which are characteristic of motor types (and which we saw in Thomas A's dictation); they read "was" as "saw"; "on" as "no"; "dog" as "god," etc.

When the letters are known, then word-building is commenced; the letters are put together in small combinations at first, and these are learnt by rote, *i.e.*, by the auditory memory; AN is "an" the child is told, PAN is "pan"; AT is "at," therefore, since P made AN into PAN, it makes AT into PAT; the intelligent child is able to make this induction for himself; so we get a visual analysis and an auditory synthesis. If letters are combined together so soon as two or three are known, they are remembered more quickly, because they come to mean something, whereas the letters themselves can have no possible meaning to a child, and the whole twenty-six form a large order to be learnt as meaningless symbols.

That is a type of the older methods, rather cumbersome, and in so far as it does not take into account consciously the development of the visual word centre or visual synthesis, it is unphysiological. Yet it stimulates the self-activity and deductive powers of the child, and a great merit is that by its means natural auditives learn to spell correctly. A newer visually analytic method is the

Phonic System, which has been worked out with great elaboration and is at present the fashionable system in our schools. It consists in paying attention to each letter and associating the sight of it with the most usual sound for which the letter stands, so that the appearance of the letter is connected straight away with the production of the sound, and by producing the sound of one letter after another, rapidly presented to the eye, the word is pronounced, the first synthesis taking place in the motor speech centre (see diagram 9). There are some advantages in this system, but there are many serious physiological objections.

1. It does not attempt to develop a visual word centre—the essential

business of any system of teaching to read, in fact, it short-circuits this centre (See Fig. 9).

2. It forms its first synthesis in a kinæsthetic centre (M) which is weak and vague, and although it undoubtedly leads to facility in reading aloud, it does not develop silent reading, which is more important.

3. Involving at first the exclusion of all irregular words, a large number of words already in the child's auditory vocabulary are for long ignored, and it necessitates special and artificial reading books.

4. Difficulties arise when irregular words are met with, and these form a large proportion of English words.

5. It teaches neither auditives nor visuals to *spell.*

The visually synthetic type of teaching reading is the " Look and

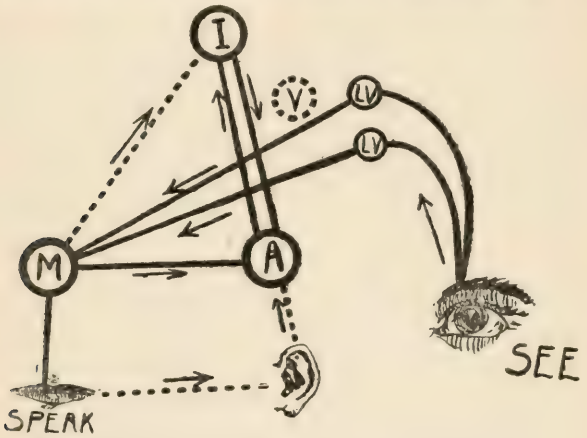

Diagram 9.—The Phonic System of Reading.

Say " method; the child is not taught to analyse the word into letters, but to connect the visual word symbol as a whole with the auditory image which is already there. This method aims at the production straight away of a visual word centre, and is to that extent more physiological than the others. It is the only system which takes into consideration the real end which all systems should make for.

It teaches " strong visuals " to spell. It does not teach " strong auditives " to spell, and—more serious—it does not give the child a means of attack upon unknown words.

The best system of teaching reading is one combining all these methods; the education in pronunciation of the phonic system, the auditory spelling of the ordinary analytic system, and the fixing of all words learnt by " look and say " methods, must all have a part in an ideal system.

EDUCATION AND THE SOCIAL CONSCIOUSNESS.

By the Rev. A. W. PARRY, B.A., B.Sc., Principal of the Training College, Carmarthen.

Delivered before the Exeter Society, October, 1908.

In dealing with the question of the Social Consciousness, it is interesting to note the place which the conception has occupied in the evolution of the educational ideal.

In the "Republic" of Plato the idea which is brought out most prominently is that of the necessity of an organic unity in social life. He maintained that the only way by which this can be secured is through education. Sir Frederick Pollock truly remarks that the conception of the State was a very living reality to the Athenians among whom Socrates was born and lived, and by way of illustration he quotes appropriately from Mr. Swinburne's *Tristram of Lyonesse*:—

> "Sons of Athens born in spirit and truth are all born free men;
> Most of all we, nurtured where the north wind holds his reign;
> Children all we sea-folk of the Salaminian seamen;
> Some of them that beat back Persia, they that beat back Spain."

The underlying idea in connection with the culture of the Romans is that indicated by "virtus." From the very first the Romans were conquerors. That, by a process of reaction, led to the necessity of a bond of unity within, so as to withstand any attempt from without to dislodge them. In consequence they possessed a sense of organic unity from the outset. It entered into the family; the head of which was endowed with almost despotic power. The relationship of the individual to the head of the family found its counterpart in the relationship of the family to the State. The proudest boast of a Roman was in his citizenship. Hence the educational end of the Roman is closely related to the service of the State. Cicero remarks, "Romans are brought up that they may one day be in the service of the Fatherland. Therefore we must learn those arts by which we may be of the highest service to the State."

The introduction of Christianity caused emphasis to be laid upon the moral ideal. It resulted in the reaction of free will in the individual as against the despotism of the State. The early Christians

were taught that they owed a duty to God and God alone, and that nothing was to stand between man and his Creator. These views were manifestly antagonistic to the Roman ideal and, consequently, from this distrust of public life there arose the desire for a monastic and cloisteral life.

The Middle Ages were essentially the period of authority. This may be illustrated by the attempt to establish the authority of the Papacy in opposition to the claim of the Emperor. In matters of faith, reason, morals and knowledge, the appeal was constantly made to authority; hence the Renaissance was primarily the awakening of the individual in man. Humanism denotes the new and vital perception of the dignity of man apart from theological determination.

This individualistic tendency has continued right up to the close of the nineteenth century. At times the individualism has been most marked. Recently, however, there are indications that a social consciousness is beginning to manifest itself. As a recent writer has pointed out, the Spencerian conception of the severe limitation of State functions finds ever fewer supporters. Even so well-known a disciple of Spencer as Mr. Benjamin Kidd recently declared, in his Herbert Spencer Lecture at Oxford, "It is not so much the human mind that is constructing the social process; it is the social process that is constructing the human mind."

It is by no means easy to realise the nature of the Social Consciousness. Professor Lindner points out that just as there is developed from the individual consciousness the "ego" as an expression of its unity, so a "we" is developed from the Social Consciousness.

He further remarks:—"The family, which to woman is a whole world, becomes in time too small in order to satisfy the strivings of the man. He seeks to unite himself to a greater whole—State, Church, Nation—for this to think, to feel, to do. He thereby enters a wider circle of associates in opinion, in destiny, in party, in moral views, which are united together into a higher moral person through a common 'we.' 'We Germans'—'We Americans'—'We Slavs'—'We Australians'—'We Catholics'—whoever speaks and thinks unites himself to a greater whole. The fate of the nation is then his fate; its mighty deeds, its history, its future, he makes a part of himself. In the monumental structures which the national consciousness has created—in the churches, theatres, industrial palaces, parliament houses—he moves as in a family inheritance. Still more is this national self-consciousness exalted when it is supported by the knowledge and study of a rich national literature."

Professor Calkins distinguishes two forms of Social Consciousness.

Of these, the first, she considers, may be best described as the Mob-Consciousness. If any group of people realize their imitativeness, and are conscious, however vaguely, of shared experiences and actions, and know that they are joining the shout of a thousand voices, or that they are rushing in a great moving mass of people, they constitute a problem of great interest to the psychologist.

For the second group there is a difficulty in determining upon a suitable name. The term Reflective Social Consciousness has been suggested. It denotes a different kind of experience from the contagious feeling and action of a number of consciously, but unreflective, imitative selves. Professor Calkins uses the different forms of college spirit to illustrate the distinction. "To cheer oneself hoarse at the athletic meeting, and to join the men who carry the hero of the games in triumph from the field, may be a mere manifestation of mob-consciousness, an unreasoned, unpurposed wave of feeling, which carries one off one's feet in the contagion of a great enthusiasm. But there is also a deliberate college spirit. The student is profoundly conscious that his pursuit of a well-shaped, academic course, of a life of close social application, and of an honourable college degree, is the aim of hundreds of other students. He realizes that he is imitating, and, in some ways, leading them, and that they are both imitators and leaders of each other and of him. He more or less clearly recognises that his advance is an alternate imitation of his teachers and his fellows, and a reaction against them. His degree has a purely social value dependent on other people's estimate of it. In a word, his college life is consciously and effectively social."

Assuming that the cultivation of the Reflective Social Consciousness may be legitimately regarded as a part of the task of the educator, certain problems arise which must of necessity be investigated. Among these we may consider the nature of the social sense of the child, his idea of social responsibility, its origin and development, and whether there is in the child at any stage of its development a tendency towards Social Consciousness as distinct from Sociability.

One of the first difficulties that confronts us is that of method. As Professor Adams so aptly remarks, "It is well to give up all hope of help in this study from John himself; John is of a modest and retiring disposition, having no pleasure in the process of being interviewed." Two plans have been adopted: the one, to utilise the careful observations which some have made of individual children, the other, to adopt the questionaire method. From the latter method little of value can be directly learnt, but material is acquired which furnishes opportunities for the formation of hypotheses which may later be tested.

The first point to be definitely grasped is one which has been well stated by Professor Baldwin. "The child is born into a system of social relationships just as he is born into a certain quality of air. As he grows in body by absorbing the one, so he grows in mind by absorbing the other."

Prof. Will. S. Monroe considers that the social sense appears in the child when he recognises and takes an interest in persons. "This ordinarily takes place not later than the fourth month, and in spite of the weak memory which characterizes the early months of infancy, the child early evinces a sympathetic interest in the social family group." The same writer gives instances from Professor Preyer and Miss Shinn. Preyer relates that a child one year old was taken from home on a visit; and that on his return he paid no attention to the cat and dog, but manifested keen pleasure in the recognition of his nurse and the other members of his family.

Miss Shinn reports that her niece, on the eightieth day, smiled and gave a joyous cry on seeing her grandfather enter the room; and on the eighty-fourth day she watched him out of the room. When he quitted her after play, she kept her eyes on him as he stood in the doorway of the next room a few seconds, and gave a joyous crow when he turned to come back.

Authenticated instances of this kind are valuable, and the writer will be grateful if he can obtain any information which tends to show the stage of development at which recognition of other selves manifests itself.

Professor Monroe, in his study upon "Die Entwickelung der sozialzen Bewussteins des Kinder," gives an account of the answers which were given by 2,336 American children to the question, "What kind of a chum do you like best?" The point which is aimed at is the discovery of the nature of the Social Conception of the child.

As a typical answer he quotes the following from a boy of eleven: "For a chum I like a boy who does not use bad language, smoke, or mix with bad company; who will help me if I get into a scrape, and not run away like a coward; one who is an honest, upright, kind-hearted boy; one who will come and see me when I am sick and cheer me, and not a fair-weather friend, who sticks by me because I have good things; and not a friend who is always telling everything about me that he knows, and not one who is always hanging around me. Such is the chum I like."

The following answer may be taken as representative of several obtained from an English Secondary School for boys. The writer is eleven and a half years of age. "My ideal of a friend is not easy to

find. The sort of chum I prefer is one who is honest and sincere, frank and open, and in every sense one on whom I could depend. I should like someone who is older and more advanced in everything than myself, so that I could ask for advice and information from him at any time. I should like someone who was good at athletics, who could run and play games well, and one who was a good worker at school. Such an estimable character of a boy is not easy to find. One desirable acquisition in a chum would be the art of drawing or painting, or even a talent for music. Such a chum is one whom I should look up to and reverence, and if I could get a chum like I previously mentioned, I should be willing to serve him in any way I was able. I should hope that we both in all things would play the part of true Christians, and that I am sure would bring more happiness to us. Another good point on the parts of a chum and myself would be never to stoop to any meanness or deceit, but to own up to our faults like men. Of course, I should have to be a true mate to him, or he would bid me 'adieu.'"

Out of a large number of papers obtained from a Girls' High School, the following answer written by a girl of ten years of age has been selected, as representing the ideas expressed by the majority. "The kind of chum I like best is one who is good-tempered, good-mannered, sensible, kind and gentle. One who is not hot-tempered or hasty. I like a chum who is always clean and tidy, and who has pride in herself, but the right kind of pride. One who has a good character, and does all she can to make her home bright and happy. Another thing, one who is kind and loving towards dumb animals, and who takes interest in nature. The latter are made by God, who likes to see His works taken care of."

Several answers to the same question submitted by boys from an English Elementary School have been examined, and the following from a boy aged eleven may be fairly regarded as a specimen of that written by the greater number of them: "The sort of boy that I should like for a chum would be a straightforward, honest boy. A boy who likes sports and is always full of fun. Not a coward, who is always running away, but a brave boy. A boy who is always lively, and does not cry when he falls down."

By way of comparison, an answer which has been received from a deaf mute of sixteen years of age is distinctly interesting. Incidentally it may be mentioned that a deaf mute of sixteen may be compared, in respect of general intelligence, with a child of twelve.

"I like a good, kind and bright girl about the same age as myself. Because she will always try to please me and make me happy. When I am ill in bed she will come on a visit to my home and see me, and do

all she can to help me and my mother. Or if I am poor and she is rich she will help me and bring me things from her home. I like the good girl best, and when I am in trouble she will try to comfort me, and say a few words to me, and when I am older I shall never forget her kind words, for 'Kind words never die.' All those kind things she has done for me I will do the same for her."

Even the casual reader must be impressed with the similarity of the ideas expressed in these answers, which have been derived from children differing widely in nationality, social position and educational opportunities. The fact is the more striking when we find the same views expressed not simply in individual, but in thousands of cases. Consequently the question arises, "What use can be made of the information thus acquired?" It is evident that any hypothesis which may be offered must be regarded as purely tentative in its character. One suggestion which has been made is that there are certain mental and physical characteristics which school society as a whole holds in esteem. Foremost among these may be mentioned, good nature, the sense of comradeship and of mutual helpfulness. How far these ideas are the result of education and how far they are the outcome of experience constitute a problem which must be reserved for future investigation.

Our aim in this article has been to show the historical evolution of the idea of the Social Consciousness: to indicate its nature and, to some extent, to point out the method by which a knowledge of the Social Consciousness of Children may be attained. No definite conclusions have been formulated, but the closer study of the subject may serve to reveal more definitely the nature of the problem which should be grappled with.

NOTES.

The next Conference of the Society will be held at Manchester in May next, under the presidency of Professor Findlay, M.A., Ph.D. The subject chosen for discussion is "Phases and Stages of Child Development." It is hoped that members will make a special effort to attend the Conference, and those intending to do so should communicate as early as possible with Miss Needham, the Hon. Secretary for the meeting, 4, Lancaster Road, Didsbury, Manchester.

The third International Congress of Home Education will be held (according to present arrangements) in Brussels, in August, 1910. Information may be obtained from the General Secretary, Mons. M. L. Pien, Rue Rubens 44, Brussels.

"Bibliography of Child-Study for 1907" is now published, and may be obtained from Clark University, Worcester, Massachusetts. A copy has been placed in the Child-Study Library, London.

It is hoped to include the complete catalogue of the Library of the Society in Part i. of Vol. 2.

SOME RESULTS OF AN INVESTIGATION INTO HOURS OF SLEEP AMONG CHILDREN IN THE ELEMENTARY SCHOOLS OF ENGLAND.

By Miss ALICE RAVENHILL, F.R.San.I.

Lecture delivered before the London Society, October 29, 1908.

It seems to me desirable to pave the way for the conclusions reached in the course of my investigations into the hours of sleep among our child population, by directing attention to the fact that psychologists and physiologists feel a keen and growing anxiety on the subject of the deficient sleep enjoyed by children at the present time; a deficiency which directly conduces to mental instability, physical inefficiency and emotional excitability.

"I have had normal children brought to me as defective," said Dr. Rayner, formerly Medical Superintendent of Hanwell Asylum, in his evidence given last year before the Royal Commission on the Care and Control of the Feeble-minded, "simply as a result of insomnia." "During the last twenty years," wrote Dr. Hyslop, Senior Physician to the Royal Hospitals of Bridewell and Bethlem, in an address given two years ago to the Sanitary Inspectors' Association, "no less than ninety-one per cent. of the cases admitted to Bethlem have had insomnia as a symptom or cause of the insanity." "One of the greatest contributory causes of physical deterioration," said Mr. Edward Rees, in his evidence given before the "Interdepartmental Committee on Physical Deterioration," is the fact that children do not get enough sleep." In a paper entitled "Sleep in relation to Education," read at a Conference on School Hygiene convened by the Royal Sanitary Institute in 1904, Dr. Clement Dukes pointed out the serious physical, as well as mental, results of regulating the hours of sleep for the juniors in boarding schools on the same lines as those adopted for the seniors, because "this means lowered vitality, apathy, bloodlessness, diminished growth of body and brain. It renders the child an easy prey to disease, and causes slight fainting attacks resembling those cases of epilepsy termed 'petit mal'" . . . . "when puberty arrives," continued Dr. Dukes, "and new functions are being established, more sleep still is imperative, as is also the case in cold weather." [1] "I can only say," writes another

[1] *The Hygiene of Mind.* Methuen & Co.

great authority on child development and mental hygiene, Dr. Clouston of Edinburgh, "that during early adolescence and even up to the age of twenty or thirty, the time for sleep should not be less than from nine and a half to ten hours."[1] As an outcome of most careful investigations on subnormal children in the Chicago School of Special Education, it was considered legitimate to conclude that the emotional tone of a child greatly affects mental effort and physical activity, that this emotional tone is in its turn greatly affected by the amount of sleep, and that children between five and twelve years of age require from ten to fourteen or fifteen hours of sleep per day; conclusions supporting in every respect the opinion expressed by my Chairman (Sir James Crichton Browne) nearly a quarter of a century ago, and since then confirmed by other English authorities on the subject, some of whose words I have just quoted.

The temptation is strong to launch out at this point into a discussion on the phenomena of sleep, and to present a résumé of some of the suggestive and illuminating theories on the deeply-seated biological reasons for its incidence in all the higher forms of animal life, and thus, in part, to explain the pessimistic attitude of those best qualified to speak on the results of its undue curtailment in amount, or of any interference with its quality, not alone in childhood but throughout life. It must suffice to say that during the past half-century, the progress of geological, astronomical and biological science has afforded abundant confirmation to the opinion advanced by Sir James Paget in 1857,[2] that "organic processes are performed with rhythm," that they are all "accomplished with time-regulated alternations," that "rhythmically active organs," such as the brain, heart, lungs or intestines, "are the seats of nutritive processes—" and that rhythmic nutrition is only a method of manifestation of the general law of Time as concerned in all organic processes." "Regarded as phenomena of nutrition," proceeded Sir James, "rhythmic changes . . . . alternate between action and inaction . . . . and are very minutely observant of time . . . . In both these regards they are examples of very general laws of organic processes; alternations of action and rest being common phenomena of organic life; all organic processes being regulated with exact observance of time" . . . . "yet," he concludes, "their importance as indicating any general law of organic life seems to be overlooked." Some years later Sir James Crichton Browne, in his valuable article on[3] "Education and the Nervous System," used, as his illustration of diurnal changes in the

[1] *Journal of the Proceedings of the National Educational Association*, 1904.
[2] Croonian Lecture, *Proceedings of the Royal Society*, May 28, 1857.
[3] *The Book of Health*. Cassell & Co.

body, "the alternation of the sleeping and waking condition" . . . . because of its prominence and importance; thus forecasting the conclusions of [1] Dr. H. D. Marsh, who, in his recent exhaustive work on the normally recurring variations of ability at different periods of the day, considers that in man the recurrent rhythm of night and day and the constant habitual alternation of activity and rest are probably the all-important factors in the realisation of man's highest potentialities. My final reference in this connection shall be to the deeply interesting Presidential Address given by Mr. Francis Darwin, at the meeting of the British Association in Dublin, last September, in which he suggested that progressive evolution amounts to a process of drilling organisms into habits, such habits being based upon a capacity of reacting to appropriate stimuli, acquired by repetition, and then becoming organically associated, so that they follow each other automatically and are distinguished by a strong, inherent, rhythmic tendency. Sleep in plants was selected as an illustration of the argument advanced, the address concluding with the significant words that "the elimination of those who cannot learn these organic habits is an integral part of evolution," and that "it is surely a positive gain to the harmony of the Universe that the discordant strings should break." Unfortunately, human strings can jangle distressingly out of tune and sorely interfere with the harmony of their well-strung companions long before they break, and give a chance to Dame Nature to re-string her harp with sound wires.

The progress of scientific knowledge thus affords substantial support to the law first formulated by Sir James Paget in his Croonian Lecture, that rhythm is a rule of organic existence, and that systematic disregard of the alternations of periods of activity and rest is associated with invariable and far-reaching penalties (a stern fact still generally overlooked); while recent writers on the connection between these rhythms and efficiency lay stress on the rhythm of sleep as of primary importance, and emphasise the necessity for providing conditions favourable to the quiet, warmth and cleanliness of the sleeper, if its full benefits are to be gained. Meantime, the general public, which includes those from whom, as parents or teachers, some intelligent comprehension of the needs of growing children might be reasonably expected, ignores these warnings, is heedless of their abundant foundation on biological and, alas! pathological facts, and is quaintly perplexed by the increase of the unemployable in some ranks of life and of the unstable in others; attributing these evidences of nervous deterioration to many causes, of which some

[1] *The Diurnal Course of Efficiency.* New York Science Press.

no doubt are actually contributory factors, though the chief cause—deficient and unrestful sleep—is usually unrecognised.

We are indebted to Dr. Acland for a lucid exposition of the existing unsatisfactory conditions in this respect in our boys' public schools; I now propose to lay before you some results of my own kindred labours in another part of the field of our national life. Nearly three years have elapsed since I began to collect information upon the hours of sleep prevalent among children in our English Elementary Schools, a task of some magnitude; the degree of success I secured being due largely to the cordial assistance I received from members of the teaching profession, alike in towns and rural districts. The printed form I issued was designed to secure accuracy, so far as was possible, and to ensure that each return should conform to a similar plan. Information was asked as to age, sex, school attended, home work done, number of rooms, (but, unfortunately, not the number in family) and general health—as well as for particulars as to the hours devoted to sleep in summer and in winter, or rather, as to the hours of rising and retiring at these seasons. Of the 10,000 Forms I sent out, 8,650 were returned to me; but of these, one-fourth were vitiated for various reasons, so that the facts I now present are based upon the analysis of returns from 6,180 children between the ages of three and thirteen inclusive, of whom 3,500 are boys and 2,680 are girls. For conciseness' sake, these analyses are most conveniently presented in a more or less tabulated form. Table (I) enables comparison to be made between the Standard Hours of sleep defined as necessary by our best authorities on the subject, and the Average, struck from the whole mass of evidence at my command. Clearly, there is a deficiency throughout these years of from three and one-quarter to two and three-quarter hours of sleep at each age period, a loss amounting to one night in every four among the youngest and eldest children, and to one night in every five among those at intermediate ages.

TABLE I.—HOURS OF SLEEP IN CHILDHOOD.

Years of Age.	Standard.	Average based on 6,180 Returns.
3–5	14·00	10·90
6	13·75	10·60
7	13·00	10·50
8	12·50	9·90
9	12·00	9·50
10	11·50	9·40
11	11·50	9·25
12	11·00	8·90
13	10·75	8·00

But, as usual, an arbitrary average is misleading, for wide individual variations from the Average exist at all ages, and certain divergencies also appear between the average hours of sleep among boys and girls at corresponding ages.

Very infinitesimal are the actual numbers of children which enjoy the longer hours of sleep recorded on a few Forms; but, mercifully, so also is the number of children whose rest is reduced to a wholly inadequate minimum. For instance, three boys out of 250 between three and five years old get fifteen hours sleep, but none of the girls at corresponding ages have more than thirteen hours, and only eight of these enjoy this amount. Similarly at thirteen, though one boy out of 475 reports thirteen hours of sleep, another habitually gets but four; two out of 350 girls at this age are fortunate enough to have twelve hours in bed, while four return but half as many.

As I pointed out in my detailed paper on this subject published in the "International Magazine of School Hygiene," March, 1908, the majority of boys in six out of the nine Age Groups get above the Average hours of sleep, the most serious deficiency—i.e. less than the Average—occurring at the ages of eight, eleven, and twelve; the widest variations from the average existing at eight, ten, eleven, twelve and thirteen years of age. The girls of whom a majority get above the Average hours of sleep were found in only five out of the nine groups, the most marked deficiency of sleep apparently occurring with them at eight, eleven, and twelve years. It is noticeable that the range of variation among girls is not so marked as it is with boys, probably because some of the employments in which the latter are engaged after eight years of age call them up early in the morning and keep them out of bed very late at night. Happily, as is shown in Table II., most children get more sleep in winter than in summer.

Table II.—Proportion of Children who have More Sleep in Winter than in Summer.

Years of Age.	Boys.	Girls.
3–5	50 per cent.	50 per cent.
6	40 ,,	40 ,,
7	30 ,,	40 ,,
8	50 ,,	50 ,,
9	57 ,,	60 ,,
10	66 ,,	60 ,,
11	60 ,,	50 ,,
12	60 ,,	68 ,,
13	55 ,,	73 ,,

On the other hand, the important habit of regularity in the hour of retiring to rest is constantly broken among these children; these admitted

exceptions to the nominal hour of bed-time amounting, for example, to 18·5 per cent. among the youngest children,—

TABLE III.—PROPORTION OF CHILDREN WHOSE BED-HOUR IS IRREGULAR.

Years of Age.	Boys.	Girls.
3–5	17 per cent.	20 per cent.
6	18 ,,	22 ,,
7	15 ,,	14 ,,
8	19 ,,	14 ,,
9	34 ,,	18 ,,
10	34 ,,	29 ,,
11	33 ,,	26 ,,
12	40 ,,	27 ,,
13	40 ,,	35 ,,

while the teachers, by whom most of the Forms were filled in or verified, were of opinion that these percentages would be much increased had strict veracity been practised; the actual hours of sleep being thus further reduced in number. (See Table III.)

The quality as well as the quantity of sleep, too, is prejudiced by the results of defective home discipline, of parental habits, of poverty or dirt, or by the premature employment of the children as wage-earners; causes which appear to exist impartially in town and in country. Few, even little children, retire to bed before 9 P.M., while 10 and 11 P.M. are mentioned as habitual hours by an increasing number as age advances. Now physiologists agree that sleep taken before midnight is more recuperative and profound than that which succeeds that hour; late rising therefore is no adequate remedy for late retiring. Many young children suffer also from loss of sleep at both ends of the night; my Returns show that two little boys of five are sent on village milk rounds daily at 5.30 and 6 A.M. respectively; at six years old, five boys are employed daily at 5 A.M., and fifteen boys and girls start their work at 6. These numbers are more than doubled at nine years old, when ten boys rise at five and thirty-five at 6 A.M. Two boys of twelve get up at 4 A.M. for market, five do so at 5 A.M. eighteen at 5.30, and twenty-one at 6 A.M. The proportions increase considerably at thirteen, when two boys rise, summer and winter alike, at 4.30 A.M.; twenty-three do so at 5 A.M., twenty-six get up at 5.30, and thirty-seven at 6 A.M. Exceptional cases are even worse off; for example, a boy of ten rises three days a week at 3 A.M. for market, while one of eight and two of nine get up at 4 A.M. for the same purpose. It must be remembered that these are not cases picked by the teachers as examples of specially bad conditions, but occur among Returns applying to a whole class.

The proportion of children systematically employed at all ages has thus more than one disadvantage; it is as physiologically detrimental as it is economically unsound. The curve of sleep for boys, e.g., drops

noticeably as the "errand boy" age is attained. No less than seventy different forms of occupation are mentioned in the boys' Returns; some calling for hours which, by their length, not only curtail sleep, but cruelly overtax the immature workers. For instance, of the hundred odd boys of ten years old in regular work, the majority are engaged before and after school every day, and from eight to ten hours on Saturday; one is stated to work fifteen hours on that day. Of the 133 wage-earning boys of eleven, three are mentioned as working over twelve hours on Saturdays; twelve out of the 143 in regular work at twelve years old also allude to this fact, but only nine mention it among the 234 working lads at thirteen, but these nine name midnight as the hour for ceasing work, which they start at 7 or 8 A.M. Two little boys of nine work on Sundays as well as Saturdays, and one of ten also mentions doing so habitually for about nine hours each Sunday. Fewer details are given on the details of girls' work, or on the length of the hours over which it extends, but the rare references to play or other forms of recreation tell their own tale of precocious responsibility and premature labour.

The range of occupations pursued by these school children is almost incredible; housework, milk or newspaper rounds, and errands for shops engage their energies up till the age of nine, then they begin to sell fruit, flowers, fish, street toys, pills, or cats' meat; they assist in manifold occupations from corset-boning to begging; from artificial hair manufacture to packing sacks at the potato market; from farm work to acting as waitress at a tea garden (a girl of 11).

TABLE IV.—PERCENTAGE OF CHILDREN REPORTED TO BE IN REGULAR EMPLOYMENT.

Years of Age.	Boys.	Girls.
6	2 per cent.	6 per cent.
7	6 ,,	8 ,,
8	9 ,,	24 ,,
9	13 ,,	35 ,,
10	22 ,,	45 ,,
11	28 ,,	44 ,,
12	53 ,,	40 ,,
13	51 ,,	42 ,,

In her admirable report on "Moral Education in Wales," Miss Hughes quotes one teacher as saying "Out of the hundred children in my school, I have found that only ten have a bed to themselves, forty-five share a bed, twenty sleep three in a bed, ten sleep four in a bed, and in one case five in a bed." My own Returns supply corroborative evidence of such deplorable conditions being widespread in the country. Thus one child shares a room with five others, many more do so with six, seven, or even eight adults; the worst case perhaps is a lad of

thirteen, whose family circle of nine persons share one room. Three and four children share one bed, not always from absence of sufficient accommodation, but from sheer want of knowledge, or want of a standard of living such as enables people properly to utilise the conveniences they possess. The revelation of parental ignorance and self-indulgence at the cost of their children's welfare; the exposure of conditions of squalor, of overcrowding, the allusions to dirt and vermin which interfere with that minimum of rest which some of the children get; the allusions to noisy surroundings which, as Dr. Hyslop has pointed out, are among all the factors detrimental to the quality of sleep the most serious in their effects on the nervous system; and finally the sad list of ailments enumerated in the Reply to the query as to the general physique of the children, not only make one's heart ache for the present suffering, but arouse most serious anxiety as to the future mental and physical condition of the population.

Among the many "Health records," children from five and upwards are reported to suffer from rickets, weak hearts, fits, diseased bones, "consumption" or nervousness, throat, ear, or eye trouble, headaches, neglect or vermin. Younger children are more often said to be healthy, and one child of six is described as "the picture of what a healthy, happy child should be." Confirmation of the view that deficient sleep is a potent factor in malnutrition is found in some returns from children transferred temporarily to a home, of whom it is stated that marked improvement in health followed upon some weeks of quiet and prolonged sleep at night.

The results of my investigations thus bring, unfortunately, abundant evidence, (1) that this most important "time law" of regular sleep is being commonly and heedlessly violated, at a period of life when the instinctive, biological habit may be permanently broken, and the penalties exacted are both far-reaching and heavy, (2) that the quality of this curtailed rest is being recklessly impoverished by the self-indulgence of careless or deplorably ignorant parents, during the years when these immature nervous systems are most seriously damaged by a poor quality as well as an insufficient quantity of sleep. Among the poorest, a system of false economics is permitted to prejudice health, because the miserable pittances these children's earnings represent is held of greater value than their normal, natural development into efficient, well-balanced citizens. Among the "better off," easy-going, thoughtless indulgence, a craving for excitement, and a complete failure to appreciate that the child is not an adult, permit the inexcusable persistence of conditions as regards sleep, little or no better.

Indeed, these Returns clearly indicate how widespread is the evil, for they were collected from many different sources, scattered all over

England. The removal of the conditions thus revealed can only be, I fear, a work of time; bad habits are proverbially hard to uproot, and these are deep-seated indeed. But, at least, all can do some spade work in the wide field of reform. The first and most important step to take, it seems to me, is to bring the subject in all its seriousness before the parents and guardians of our child life in this country, for the formation of an educated public opinion must precede more intelligent methods of child management. Next in order, I would place the improvement of the housing of the people; the defects of which seem to constitute the core of many physiological sins and most social sores. In the third place, strict enforcement of the law relating to the employment of child labour must be rendered obligatory on all local governing bodies. The whole scheme demands much patient, arduous work from us all. To regulate the clock of child life, to check these "time unpunctualities," is a great undertaking; but is not the quality of steadfast perseverance in well-doing just one of those virtues upon which, as a nation, we pride ourselves highly? Here is then our chance to substantiate by our deeds the assumption of those national characteristics which it is conventional to complacently accept, without an always adequate recognition of their coincident and weighty obligations. And the object, namely the welfare and nervous stability of the nation, should be surely a sufficient stimulus to sustained and untiring efforts in the cause of such a reform.

LECTURES TO BE DELIVERED BEFORE CONSTITUENT SOCIETIES FROM JANUARY TO APRIL, 1909.

Birmingham.

Feb. 23.—Imagination. Miss R. Sidgwick, M.A.
Mar. 23.—The Teeth of Children—a subject of National Importance. W. T. Elliott, D.D.S., L.D.S.

Cheltenham.

Feb. 8.—Temperament and Character. Prof. J. Adams, M.A., B.Sc.
Mar. 4.—The Religious Training of the Young. Miss E. Nixon.

Dundee.

Jan. 15.—An Educational Tour in South Germany. A. J. Pressland, M.A.
Jan. 22.—Some Aspects of Feeling as a Factor in Education. Miss C. E. Ainslie.
Feb. 12.—Varieties and Practical Application of Child-Study. Professor J. Edgar, M.A.
Feb. 26.—Children's Drawings. Miss J. K. Borland.
Mar. 5.—Æsthetic Apperception. Professor H. J. Watt, M.A., Ph.D.
Mar. 12.—Business Meeting.

Edinburgh.

Jan. 27.—Mental Hygiene during the School Age. Dr. T. S. Clouston, M.D., F.R.C.P.
Feb. 17.—Æsthetic Appreciation. H. J. Watt, M.A., Ph.D. (Glasgow University).
Mar. 17.—The Place of Feeling in Mental Life. Dr. F. H. Mellone.
April 7.—Report on Practical Work.

Exeter.

Jan. — Annual meeting and Presidential Address.
Feb. — Address. Dr. Mabel Ramsay.
Mar. — Pupil Self-Government. Dr. Cripps-Lawrence.

Halifax.

Jan. 20.—The Meditations of an Infant. S. G. Moore, M.D., D.P.H.
Feb. 3.—Domestic Work—its Psychological Aspect and its Place in the Curriculum. Miss Barbara Foxley, M.A.
Mar. 3.—The Conduct of the Understanding. Professor Alexander.
Mar. 13.—Discussion on Questions raised in the Lectures for the Session.
April 6.—Discussion on the Difficulties of Teachers and Parents in the Training of the Young.

London.

Jan. 28.—Discussion on the Report of the Royal Commission on the Care and Control of the Feeble-Minded. Opened by G. E. Shuttleworth, B.A., M.D., Mrs. E. M. Burgwin, and Mrs. Dickenson Berry, M.D.
Feb. 11.—"Causerie." Reception of American Teachers.
Feb. 18.—The Age of Entry into School in its relation to Progress. W. H. Winch, M.A.
Mar. 2.—Annual Meeting.
Mar. 2.—Mental Development of Children. Professor J. Adams, M.A., B.Sc.
Mar. 18.—Handicraft as a Factor in Mental Evolution. T. H. Hewitt, F.R.G.S.
Mar. 25.—The Religious Difficulty in the Light of Mind Study. Prof. J. H. Muirhead, M.A.

Manchester.

Jan. 21.— Professor Alexander.
Feb. 19.—Some Types of Character in Children. Mrs. Mumford.
Mar. — C. W. Kimmins, M.A., D.Sc.

West Kent.

Jan. 30.—Children's Festivals. Mrs. Laurence Gomme.
Feb. 23.—The Genuine and the Sham. C. Lowry, M.A.
Mar. 9. Medical Inspection of School Children. H. Dyer, M.D., D.P.H.

REVIEWS.

Pestalozzi: An Account of his Life and Work. By H. Holman, M.A. (Longmans & Co. 3s.)

There was room for another Life of Pestalozzi and, still more, for a clear account of his educational principles. Mr. Holman has given us a lucid account of the man and his work which will be of great value to the younger teachers who are springing up, and need the inspiration of the pioneers in their calling. He begins by showing what were the main influences at work in the times in which Pestalozzi lived, and then gives an account of his actual achievements in school work. More than half the book is devoted to an exposition of his opinions and doctrines, drawn from his various writings, and to some criticism of these. There is a small but ardent group of Pestalozzians who would prefer that *How Gertrude Teaches*, for instance, should be read and studied first-hand ; on the other hand, there are many who will be grateful for this analysis and who will derive benefit from it. Speaking for ourselves, we think that the most valuable service Pestalozzi has to offer to teachers is to allow them to warm their hearts at the fire of his unselfish and unrequited devotion to his task. We feel therefore disappointed to find the story of the experiment at Stanz

narrated in a somewhat matter-of-fact way, with little of the glow or warmth one would expect to find in telling a story which should be a heartening memory to every primary teacher in the land. But, making allowance for the somewhat sharp outlines cast by the *lumen siccuno* which is doubtless appropriate to a work of this kind, the book is in every way to be commended.

M. M. P.

The Report of the Royal Commission on the Care and Control of the Feeble-Minded.

A brief account of this monumental Report may be interesting to our readers, touching as it does on various problems connected with the education and training of sub-normal and other exceptional children. The original warrant of appointment of the Commission was issued in September, 1904; the Report itself was published in August, 1908. Thus nearly four years were occupied in the investigations and deliberations of the Commissioners, and in all 201 witnesses gave evidence before them. Amongst these were representative members of the Childhood and Child-Study Associations, such as Drs. Francis Warner, Fletcher Beach, Langdon-Down, G. E. Shuttleworth, Mrs. Burgwin, and several of the staff of the Special Schools both in metropolitan and provincial centres. It is perhaps to be regretted that no one with personal experience of the practical training of mentally defective children had a seat on the Commission, though in a sense the Special Schools were represented by Mrs. Hume Pinsent, who had filled the office of Chairman of the Special Schools Committee at Birmingham, with whose views the conclusions which find place in the Report as to the above class are largely tinctured. Space will not permit of anything like a *résumé* of this voluminous Report, and we must content ourselves by saying that the main features of the Recommendations are as follows :—

1. That one central authority, to be known as "The Board of Control," shall exercise jurisdiction over all classes of "mentally-defective" persons, juvenile as well as adult, including lunatics, dements, idiots, imbeciles, feeble-minded, moral imbeciles, weak-minded epileptics, inebriates, deaf-mutes and blind.

2. That the local supervision of the persons in these several categories shall be vested in County Borough and County Councils acting through Statutory Committees appointed for this purpose. Such Committees will be responsible not only for the suitable custodial care of all classes of mentally defectives generally, but must provide for the necessary training of certain cases, and will take over from the Education Committee the manual, industrial and other training of all mentally defective children, the special schools or classes now in existence to pass from the jurisdiction of the Board of Education to that of the Board of Control. Special schools already established are to be transferred by the education authority in each locality to the local "Statutory Committee" unless a contract be made between the two committees whereby the existing system of special instruction is carried on subject to the approval of the Board of Control.

3. That with regard to feeble-minded ("mentally defective") children, a system of record and limited notification be adopted, so that a continuity of control may be possible in after-life.

4. That certification by a single medical practitioner, in a form similar to that prescribed by the Idiots Act, be required for admission to suitable institutions and homes in the case not only of idiots and imbeciles, but in that of mentally and morally defective persons, and of such inebriates, epileptics, and blind or deaf and dumb of any age as are mentally defective.

From the above it will be apparent that nothing less than a revolution in the lunacy administration of the United Kingdom will come about should the recom-

mendations of the Royal Commission be embodied in legislation. It may be a question how far it may be advisable to "tar with the same brush" the adult lunatic —even though called "mentally defective" (not, we think, quite logically)—and the simply sub-normal child. It seems to us that any scheme of compulsory notification of a young child as belonging to this undesirable class will be attended with considerable practical difficulty; and medical examiners will incur a heavy responsibility in stigmatising as defective a pupil found unfit for the ordinary school curriculum but nevertheless capable of benefiting to a large extent by the more individualised instruction practicable in the special class. It is true that the Report contemplates (Sect. 313) "observation centres" in the case both of children and adults where doubtful cases can be sifted out, and their recommendation would involve (so far as elementary school children are concerned) the institution of separate classes intermediate between the ordinary and the special school, a course which has been advocated by Dr. Kerr and others, and which is actually in vogue in some Scandinavian and German educational centres. Notification too rigorously enforced would militate against the co-operation of parents in obtaining appropriate training for their sub-normal children if so doing involved the prospect of their being speedily and permanently labelled as outcasts under the jurisdiction of the Board of Control.

Notwithstanding the somewhat faint praise accorded by the Commission to the results of training hitherto obtained in the special classes and the residential institutions of this country, and their extolment of American methods, we are inclined to agree with Sir James Crichton-Browne in a recent utterance to the effect "that in all that concerns the education and care of the feeble-minded we have been leaders and sound guides; other countries have more to learn from us than we have from them." We find no recognition in the historical retrospect in Chapter XIII. of the investigations of the *Committee on the Mental and Physical Condition of Childhood* (published under the auspices of the predecessors of the Childhood and Child-Study Societies in 1895) which paved the way to the separate instruction of feeble-minded and other exceptional children, as recommended by the Royal Commission presided over by Lord Egerton of Tatton, and which we are proud to consider an epoch-making Report.

The general tendency of the recommendations of the Commissioners is to withdraw from the purview of the Educational Authorities children of feeble mind, and to transfer them to that of the Board of Control and of local statutory committees charged with the administration of lunatic asylums, hereafter to be called "Mental Hospitals." How far the dissociation of feeble-minded children of school age from the general system of elementary education is expedient seems to us a very debatable question. Theoretically, no doubt, there is something to be said in favour of all persons mentally abnormal, whatever their age, being brought under the supreme control of a single authority; but it must be remembered that the diagnosis of mental defect in the early years of life is by no means an easy matter, and that there are many conditions of sub-normal mentality which may not prove to be of a permanent character. The susceptibilities of parents, moreover, have to be reckoned with, and many would be discouraged from availing themselves of opportunities of special instruction for their children if to do so necessitated their being branded officially as potential lunatics and handed over to the control of a board which, however designated, would be virtually an expansion of the present Lunacy Commission. A wiser plan, and one more consonant with parental (and we think also) popular feeling, would appear to be, to keep mentally-defective children of school age as at present under the educational authorities, and at sixteen, or earlier, if necessary, transfer those who prove to require permanent care (or even supervision) to the official list of the Board of Control. Premature compulsory labelling would tend to defeat its own object—that of early detection with a view to permanent protection—inasmuch as sensitive parents would do their utmost to conceal the existence of children who might

be but slightly defective (or in their fond parental opinion not at all so) if the law required them to be placed at once in the category of the mentally unsound. Those who have had practical experience in the work of the special schools know how tactfully parents have to be handled in this connection, notably in the first instance, though subsequently they become more ready to admit their children's failings and to avail themselves of arrangements made for their benefit, even, if needs be, to the extent of segregation from their homes.

In conclusion, we must briefly advert to the views of the Royal Commission with regard to the training of teachers for the feeble-minded. Whilst concurring in Dr. Ethel Williams' expression of opinion (quoted with commendation in the Report) that "*nous*" and capacity are more important than special training, we are unable to follow the Commissioners in their conclusions that untrained assistants would suffice for any large number of the pupils attending special day-schools, however this might be in such institutions as the Starcross Imbecile Asylum, which meets with much unquestionably merited praise. As a general rule, we think that to be a successful teacher of the feeble-minded, qualifications both of heart and head not one whit inferior to those of the ordinary teacher, and indeed more comprehensive, are absolutely indispensable. The special teacher, therefore, needs to be well equipped, not only in the fundamental principles of education like other teachers, but more particularly in such matters as hygiene and physiology, psychology, articulation, breathing exercises, and the practical arts required in manual and technical instruction. Mere enthusiasm and love of the work, though helpful, will never supersede the necessity of systematic training; and we should strongly deprecate any further lowering of standards of qualification beyond the minimum now fixed by the Board of Education.

G. E. S.

Report of the Consultative Committee on the School Attendance of Children below the Age of Five. (Eyre & Spottiswoode. 1*s.* 5*d.*) pp. 350.

This Report is the last word on the much-discussed question as to whether children under five years of age should be excluded from the infant school. The Committee decide that there are many children in this country whose neglected home conditions demand that public provision shall be made for their education. This should, however, be carried on very differently to the present system. The Committee recommend that there should be plenty of space and opportunity for free movement; all the conditions should be such as will promote the formation of hygienic and decent habits in the children, and will conduce to the maintenance of health; formal instruction should be rigidly excluded, there should be no fixed time-table, and the activities engaged in should be in harmony with the needs and interests of children of that age, and should further mental and physical development. The character of the future provision for these children is implied in the term "Nursery Schools." These schools, it is suggested, should be included in the ordinary group of school buildings. The recommendations of the Committee are endorsed by the reports, included in the same volume of the Board of Education, on the care and education of young children in France, Belgium, Switzerland and Germany. These afford suggestive material for comparison with our own methods. Public attention has been directed so much of late to questions of infant mortality and infant health that the whole volume will be found interesting and helpful.

S. Y.

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Child-Study.

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THE PREPARATORY SCHOOL AND ITS RELATION TO THE KINDERGARTEN.

By CAROLINE HERFORD, late H.M. of Ladybarn House School, near Manchester.

Delivered before the Cheltenham Society, October 9, 1908.

In considering one part of the educational problem, let us glance for a moment at the whole. It is only by trying to see each part in some of its relations to the whole that there is any hope of getting the importance of the part recognised, and at the same time of keeping it free from the exaggeration which exclusive attention to one part inevitably brings. The Kindergarten has suffered from both these dangers: a danger of sentimental exclusiveness on the one hand, and on the other of being cold-shouldered as an inferior department; are not both these attitudes ignorant and foolish? Looking at the educational problem as a whole, what is our object? Let us be satisfied with nothing less than the helping every boy and girl to attain the highest level of individual perfection and social service of which each is capable. The object is an inspiring one, and we are not less likely to approach the ideal if we frankly recognise unalterable limitations in both the children and ourselves. The investigations of Galton and Karl Pearson make it clear that the greater part of the potentialities in any individual are *born*, but even they allow that there is a margin which may be cultivated. A few years of teaching experience is enough to convince any one of us that in the main Galton and Pearson are right, that what we can do for children by education, however enlightened, is limited by what their parents and ancestors have done for them, that is by their physical and mental equipment at birth. Would not parents and teachers be saved from many a grievous disappointment if these facts of heredity were more clearly realised and accepted? If opportunities of more varied work were offered to children, manual work as well as linguistic, then

the only failures would be those who can work at nothing—I believe, a very small percentage. This unalterable equipment with which the individual starts, long ago recognised in the proverb, "You cannot make a silk purse out of a sow's ear," instead of being a counsel of despair, should rouse us to see that no stage in education is neglected, sparing no pains to train the new individual to know and to do, or rather *to do* and thereby *to know*.

Is it possible that in the far future a fuller realisation of the birth-start having become general, a complete reversal may take place of our usually received educational values? The birth-start will be considered of the first importance, the home-nurture of the second (already these two are occupying more thought and general attention than ever before); then next in importance will come the Kindergarten and the Preparatory school, and, of decreasing importance in the education of the individual, the upper forms and the Universities. I only offer the suggestion as a possibility, and leave it to Mr. Wells to work out in detail.

I shall only deal with that section of the problem into which school education first enters, the Kindergarten and Preparatory school, the ages of 4 or 5 to adolescence. Do these early stages of education receive the attention that they deserve? I emphatically say no: neither from the general public (which has so much to say about education and such a considerable influence on educational policy), nor from that important section of the public known as parents, nor from many of the leaders of the teaching profession. The reasons for this indifference arise chiefly from ignorance of the needs of young children, and the difficulty of distinguishing, in their training, genuine improvements from spurious innovations. The results of work in these early stages are very difficult to assess, and some evidence of good work, governing bodies and parents have a right to ask. It cannot be done by the usual external examination sieves, which often cripple the teaching of higher forms, but are fatal to good work with the younger children; it can only be done by *inspection*, conducted by men or women who have had some first-hand experience of the pleasures and difficulties of teaching young children.

If this difficulty of distinguishing good work from indifferent in the lowest forms was surmounted, there is still a good deal of scepticism about the Kindergarten, and what place, if any, it deserves to take in our educational system. After a good many years of experience, I am convinced that if a Kindergarten under a capable mistress is within reach of the young children, if they do not use it they are missing

something that can never be made up to them in later life. There is a very general and well-founded feeling, that when a child goes to school it should be to learn to work, and the Kindergarten to the casual observer seems play. Now it was just the play of small children that Froebel watched, with such far-reaching consequences to educational thought. He saw them engaged with eagerness and attention manipulating such trivial material as sand, sticks, paper, chalks, clay; he saw continuous effort directed to some definite object, that is, the beginnings of concentration, and he recognised the essentials of all work. Every follower of Froebel must be a sympathetic observer of young children, and help them to learn to do together what, singly and through word of mouth, they learn with much greater difficulty, if at all.

Can the importance of the training of the sense-organs be exaggerated? We want children to gain as many first-hand impressions of things as possible, and to make their own discoveries through touch and sight as well as sound. Is it not short-sighted to hurry the children on to the three R's., neglecting the world of things which can give so much vital interest to books later on? The Kindergarten leads on to the Transition Class, in which the three R's. have an honoured place, but when this step should be taken is a debated question. I do not hesitate to recommend, from my own experience, about the age of six; if reading is postponed until then, progress is made more quickly than if it is begun earlier, and writing can be taught at the same time, which I have found add to the variety and interest of the lesson. Anyone trying to teach Reading or Arithmetic to children who have spent a year or more in a Kindergarten, side by side with others who have not had the same chance, experiences a striking proof of the helpful training that a good Kindergarten gives. It is sometimes at this stage, or later, that dislocation is in danger of taking place between one stage of the school life and the next. This can be avoided if the teachers of each department realise the importance of knowing as much as possible about the one before as well as the one that follows their own, and doing their best to work in harmony. There must be no water-tight compartments, for if the different departments are exclusive, there can be no solidarity: all suffer, especially the children.

If there is a general whole-hearted wish that all that is good in the Kindergarten should not be lost by neglect or suppression, but developed on lines suitable for older children, in what respects is it likely to lead to a modification of the Time-table?

(*a*) What is generally known as Hand and Eye training, or manual work, is sufficiently obvious in the Kindergarten (some people think there is nothing else). Why should this be suddenly dropped in the school? If its essential relation to mind growth is realised we shall

make it an indispensable element in the plan of work right through the school, and never let it be crowded out. May I suggest some of the alternative forms suitable for children up to fourteen years of age, all of which I have seen in use? Cane-weaving, wood-sloyd, drawing with liberal use of colour-washes and coloured chalks, netting and knitting, the making of MS. books for the children's own use, various ways of using a needle, coarse canvas and a large wool-needle, leading up to plain sewing and embroidery. I am not advocating the use of all of these at the same time for the same children, but they might all have two of the groups, and the junior forms at least three. Let us beware of sex disabilities here, and never give the boys all the drawing and wood-work, and keep the girls exclusively to the needle.

(*b*) To take another group of subjects: Natural Science. There has been a considerable increase in the amount, and improvement in the manner, of teaching science in the last twenty years. It generally takes the form of what is called Nature Study in the Kindergarten and the Preparatory school. When well done, the children's interest in plants and animals and their habits is quickened. Observation of these real things should gradually become more exact and systematic, and, avoiding the use of a text-book, the child's note-book will contain many drawings from nature and short notes of observations. This will gradually lead on to higher experimental work, and the well-kept laboratory note-book. It is important that the teacher who takes this subject, even with the younger forms, should have a thorough knowledge of at least one branch of science (botany, geology, or zoology are the most useful in a Preparatory school), so as to have a ready means of testing his own ignorance of the other branches.

(*c*) In Mathematics, the experiences of number and form that have begun at home and in the nursery are continued and systematized in the Kindergarten. The concrete basis of calculations is experienced with sticks and cubes; the use of figures and notation comes as a convenient means of manipulating larger numbers. If understanding and thoroughness are made of the first importance, the slow, almost imperceptible progress of the beginnings is followed by rapid improvement. Take as an example the multiplication tables, by which so many Froebelian schools have been tested and found wanting. Needless to say, they have no place in the Kindergarten, but an important one in the Preparatory school. After a good training in addition and subtraction with realisable numbers, if the children construct the multiplication table on the black board with the teacher, in a kind of voyage of discovery, it becomes attractive; but with this understanding our task is only half done. We need practice in accuracy

and quickness to make the tables a ready tool. Accuracy in one table should justify the going on to the next. The learning of weights and measures ranks on a different plane if we begin with experimental work. Long measure may take the arithmetic lessons of a week or a fortnight, but I maintain the knowledge of a pole, or a furlong, or a metre gained by measurement is a possession for life. The use of the metre measure may form the best introduction to decimal fractions, which with its help may be used much sooner than is usual.

In geometry the clay-modelling and paper-folding of the Kindergarten lead up to measuring and geometrical drawing, which should be followed by one of the many re-arranged Euclids. These methods require time; they cannot be hustled, they do not look very imposing on a syllabus, but they spell truth and reality to the child.

(*d*) To turn to language teaching, I would maintain that the exclusive language of the Kindergarten, and the main language of the Preparatory school, should be the mother tongue. In this country we often take English as a matter of course, a language that we shall get hold of somehow, and that is just what we do. In France, the native tongue is a matter of careful study, both in speech and writing, and one result is that a laundry-maid in France can write a letter that would compare very favourably in style with that of many an English University graduate. Let us give more attention to clear and accurate English speech in the Kindergarten, and leave the learning of a foreign tongue until about 9 years of age, when the reading and writing of English is fairly fluent. We have had abundant practical experience that this facility can be attained if reading and writing are begun about 6 years of age.

To summarise: no Preparatory school or Preparatory Department of a larger school can consider itself efficient if in all the classes some provision is not made for Hand-work; Natural History (mainly observation and experiment); Mathematics (the use of figures postponed until 6, the concrete before the symbol or at any rate along with it); Language training, mainly the mother tongue (the speaking and writing of it as well as the reading), followed by French or Latin not earlier than 9 years of age; Singing, Tonic-sol-fa method preferred; Drill, if possible Swedish, and arrangements for games for all, out of doors whenever the weather makes it possible. As to Morals and Religion and their connection, of which so much has been said at the late Congress, and on which subject Prof. Sadler has produced a Report which no one interested in education can afford to miss, I will only state my personal conviction, that all our educational work must be on a definite moral and religious basis, or we are but building on the sand.

THE PHYSIOLOGY OF THE CHILD.

By ERIC PRITCHARD, M.A., M.D.Oxon, M.R.C.P.Lond.
Assistant Physician to the Queen's Hospital for Children.

Delivered before the London Society.—November 26, 1908.

The human body, with its vast resources for the division of labour and for the combination of forces, has been compared to a well-ordered society in which the services of its individual citizens are subordinated to the general interests of the whole community. I propose to pursue this analogy in an attempt to explain to you how in the growing child these various mechanisms are engineered and brought to perfection. The old fable of "the belly and the limbs" in allegorical manner illustrates the mutual independence which does, or should, exist between one citizen and another, but the moral this fable points would lose in aptness and accuracy were it not that the belly can communicate its wants to the limbs, and that the limbs have similar access to the sympathies of the belly.

The progressive stages in the evolution of the ways of communication between social communities find their counterpart, or rather precedent, in those of the animal series through which we trace our own descent. Further than this, we find almost exactly parallel stages in the embryo, the fœtus, the infant, and the child ; for, as you are doubtless well aware, the individual development of each one of us recapitulates the history of our evolution from the lowest form of animal life.

Thus the human embryo in the womb of its mother consists, like a very humble animal organism, of a few undifferentiated cells, with no other means of communication than that which is provided by contact and continuity. As the embryo enlarges and its component cells increase in number, we can distinguish the formation of rudimentary channels which constitute efficient means of communication between relatively dissociated parts of the growing organism. Along these primitive vascular channels, which are the analogues of the primæval paths of dawning civilisation, the common supply of nutriment is distributed to the body, and messages can be despatched from one group of cells to another. As development proceeds, and these highways of communication are perfected in detail and magnified in extent, every single part of the growing embryo is brought into intimate association with

every other part, and a primitive form of postal service is established. The manner in which this natural postal service is conducted along the highways of the animal body is of fascinating interest, and it involves principles of physiology, the far-reaching significance of which is only just beginning to be understood.

The messages which are dispatched along these paths of communication are chemical in nature, and they are generated by each organ as it comes into activity. These chemical bodies are poured into the circulation and whirled along in the eddies of the blood-stream until they eventually reach their pre-determined destination. Here they act as specific agents, or stimuli, receive their answer, and evoke the required reaction. Without entering into the details by which these chemical messages control the ordered development of the embryo and fœtus, let me provide you with a simple illustration of the manner in which the mechanism works at a somewhat later stage of development.

When a child exerts itself in an attempt to run, its rate of respiration is increased—in other words, it gets out of breath. These correlated phenomena represent a combination of functions which could not possibly occur apart from the dispatch and delivery of an appropriate message. In the muscular exertion of running, energy is liberated by the combustion of fuel in the muscles concerned in the movement, in exactly the same way that coal is consumed by an engine which is hauling a train, and just as the furnace of the engine requires a free draught of air, so do the furnaces of the muscles require a more liberal supply of oxygen. Now how do the muscles communicate to the lungs their need for this richer supply of oxygen? They do so in the following manner. In the act of combustion a chemical substance is liberated and imparted to the blood-stream, just as the inanimate engine pollutes the atmosphere with smoke. This body acts as a specific messenger or stimulus to the mechanism of the lungs, and as it reaches its appropriate destination it urges these organs to increased activity; hence the increase in the frequency and amplitude of the respirations.

In this way, other and equally important organs with associated actions can afford one another mutual support when they are brought into indirect communication by means of circulating stimuli of this kind. As an illustration of a somewhat more complicated combination of functions there is the remarkable sequence of phenomena which occurs when food is submitted to the digestive processes of the alimentary canal. When food is swallowed and enters the stomach, it acts as the stimulus for the secretion of certain chemical substances which are collectively known as gastric juice. Some of these chemical bodies help to digest or liquefy the food; others are carried away in the

circulation as advance messengers or stimuli to prepare other digestive organs for the task which will be shortly imposed upon them. Thus, when the partially digested food leaves the stomach and enters the upper part of the intestines, it acts as a stimulus for the secretion of a particular chemical substance (secretin), which in its turn passes into the circulation and soon reaches the pancreas. Here it acts as the stimulus for the manufacture of a juice which plays a far more important part in the later stages of digestion than at an earlier period is performed by gastric juice itself. Many organs are concerned in the complete digestion of food, but practically all of them are kept in such sympathetic *rapport* with the doings of the others by means of these circulating stimuli, that the normal stages of digestion follow one another in a regular and advantageous sequence. It is easy, therefore, to understand why such serious results follow when any one of the links in this golden chain snaps under strain or mis-usage.

The same stimuli which excite fully-grown organs into activity and determine these harmonious rhythms are also the activators of development in the growing child, for it must be remembered that the exercise of function is the stimulus of growth. You have only to analyse for one moment the familiar causes of muscular development, and you will be at once able to understand how the same line of argument will explain the causes of an enlarged liver or of a hypertrophied heart. One of the greatest curses to which the human body is the unhappy heir is the disproportionate development of different groups of organs. The individual who makes a god of his belly is the heir to enlargement of all his digestive organs, and to the whole train of discordant symptoms to which such a condition gives rise.

Disharmonies often disturb the peace of the human organism owing to the enlargement or hypertrophy of particular organs, and to the discharge into the circulation of an excess of the stimuli which they specifically generate. Individuals who have hypertrophied thyroid glands suffer from a complexity of symptoms which is due to the circulation in the blood of an excess of the secretion to which the thyroid gland gives origin. Chief among these symptoms are prominence of the eyes, palpitation of the heart, and nervous tremor of the hands. We know from experimental researches and clinical observations that these symptoms are due to specific stimuli posted into the circulation by the diseased gland, but we are quite unable to say what was the particular stimulus which caused the hypertrophy of this organ. It is highly probable, however, that this unknown stimulus is contained either in the food we eat or in the fluids we drink. Just as enlargement of this gland causes the symptoms already related, so does

its atrophy, combined with a deficiency of the stimuli which it elaborates, produce a complexity of symptoms which is the direct antithesis of that described above. Atrophy or functional incompetence of the thyroid glands renders the patient slow and sluggish in his movements, causes slowing of the heart and a fall in temperature, symptoms which tend to disappear in a miraculous manner when he is supplied with the activating stimulus of thyroid extract obtained from some slaughtered animal. Functional incompetence of the thyroid gland during the developmental periods of childhood causes a remarkable arrest of growth, both physical and mental (cretinism).

Again, in children, a very interesting condition has been noticed, when the pancreas has failed to supply the developing organism with its series of specific stimuli. Such children remain, like Peter Pan, in a chronic condition of childhood ("pancreatic infantilism").[1] These little Peter Pans immediately grow up if they are fed on an artificial preparation of pancreatic extract.

But perhaps a still more interesting example of the harmonious activity of associated organs which is rendered possible by the circulation of floating stimuli, is to be found in the correlated phenomena which occur at the time of puberty. With the active exfoliation of the germ plasma which has remained since birth in a condition of quiescent hibernation, chemical bodies are set free in the circulation which act as the specific stimulants for the development of the distinctive sexual characteristics. Thus in the boy there is a general impetus to growth, to the development of physical strength and moral courage; while, faintly echoing the aggrandisement in plumage noticed in the adult male bird, the first traces of hair appear on his beardless chin. As a concomitant also of these changes a very sudden metamorphosis occurs in the anatomy of his larynx.

The cracking of the boy's voice is one of the most interesting manifestations of adaptations in the human body, and it illustrates the supreme importance of a well-organized postal service. For were it not that messages can be sent from one part of the body to another, the boy's vocal cords would remain for ever a discordant and jarring musical instrument. When the boy was a baby he very slowly and by painful endeavour became master of his own voice, and the control thus acquired was not subsequently lost, owing to the fact that his vocal cords increased in size by such imperceptible stages that co-ordinated movements, once acquired, were not interrupted, nor their delicate mechanism disarranged. But at the time of puberty the larynx suddenly receives a great stimulus to growth, the vocal cords experience a corresponding

[1] Byrom Bramwell, *Clinical Studies*, vol. ii., p. 348.

elongation, and accuracy of phonation is rendered temporarily impossible. But within a few months the boy regains the mastery over his vocal apparatus through the stimuli which reach him by way of his eyes and ears. He resents the ridicule of his friends, and his kakophonic vocalizations jar upon his auditory nerves, and after many wild and fruitless attempts he learns to accommodate his muscular efforts to the new conditions.

The reference to the stimuli which are translated to various areas of the body from the outside world through the medium of the auditory and optic nerves, brings me to a point in the argument to which I have been steadily leading. So far I have only concerned myself with the primitive systems of communication which exist in the child, and which may be compared to the early methods of delivering letters among social communities; but Nature adopted at quite an early period in the history of organic evolution an infinitely superior method for the transmission of messages in the animal body. I refer, of course, to that exquisitely devised method of electric communication which is embodied in the nervous system of man and most of the lower animals.

The great superiority of Nature's telephone system over that of modern civilization lies in the fact that, while the latter can only transmit the vibrations of sound, the telephones installed in our bodies can receive and hand on every known form of stimulus, whether it be of sound, of light, of touch, of heat, of cold, of taste, or of smell. It is true that all our telephones are not attuned to all these forms of stimuli, but that is only because Nature has found it more economical to rely on specialisation and a perfect division of labour. Owing to the enormous number of telephones adjusted for the receipt of the different forms of stimuli which impinge on our bodies from the external environment, it is perfectly certain that no event can occur in our immediate neighbourhood without sending some message or other to the central exchanges of our nervous system.

The part which these stimuli have played in the past in the evolution of the animal series, and the part which they now play in the development of the child, is practically incalculable. Every stimulus which falls on the body, whether it be of light, of sound, of heat, or cold, has some effect, whether it be for good or evil, and the effect which it has is more or less permanent and enduring. The effect of the same kind of stimulus constantly impinging on our bodies throughout the ages has been to stereotype certain of our actions; the same telephone has been so constantly used for the same purpose that it seems to be able to evoke only one kind of answer. In this way a very large number of our functions have become quite automatic. Thus we are born into this

world with a large number of ready-made and automatic centres of administration. The moment the appropriate stimulus impinges on the telephone to which it is attuned, the whole machinery is set in motion. Thus the very complicated mechanism of respiration is stimulated to activity at the moment of birth, partly by the accumulation of chemical stimuli in the blood of the baby, and partly by the messages which the cold air conveys by way of the appropriate telephones. If the baby were born into warm water instead of into cold air, it would make no attempt to breathe. At the time of birth, although the baby is provided with a very elaborate telephonic system, it is by no means complete in all its details—in other words, the nervous system is only partially developed. The installation is more complete in regard to those functions which are absolutely essential for the maintenance of life. Thus, as I have already stated, it is complete as far as respiration is concerned, and, of course, it is complete with respect to the mechanism of the heart, or otherwise the infant would die. But it is inadequately developed in respect of organs which only come into use at a later period. For instance, although the eye is an immensely important organ in the fuller life of the adult individual, it is by no means essential to the infant's health or comfort, and consequently the whole ocular apparatus, with its nervous mechanism and sensitive surfaces for the reception of light, is in a condition of incomplete development at the time of birth.

The stimulus for further development is the incidence of rays of light upon the eye. Some interesting experiments have been made to prove that this is true. For instance, if a young animal is taken, and one eye is securely covered with a bandage, while the other eye is left exposed, it is found, after variable periods, that the optic nerve and its paths of ramification in the brain remain undeveloped on the bandaged side, while they develop normally on that which is exposed to the stimulus of light.

The lesson of this experiment emphasizes the enormous importance of the application of normal forms of stimulation. Many uninformed individuals seem to imagine that the child will grow and develop spontaneously under the mysterious propulsion of forces that lie concealed within it, and which are its natural heritage, but there is no organ that acknowledges any master except the specific form of stimulus to which it is attuned and which reaches it directly or indirectly from the external environment.

Reactions to stimuli of the kind to which I have already referred are not difficult to observe or understand, nor is their importance obscured; but the effect of some forms of stimulation, though equally

important, is more likely to escape notice. Let me refer briefly to one which is very closely concerned with maintenance of health. The reaction to which I refer is dependent on the stimulus of heat and cold.

The normal temperature of the human body is set at a fixed level of 98·5° F. This constant temperature is maintained by a very complicated telephone exchange or nerve centre which is situated in the brain and spinal cord (thermo-taxic centre). When messages of cold reach this exchange, orders are conveyed throughout the body to stoke up the internal furnaces, and, when messages of heat arrive, orders are sent out to damp them down. In virtue of this automatic mechanism, we can exist and maintain our normal temperature when that of the surroundings is high enough to roast a leg of mutton, or low enough to freeze mercury. But let it not be supposed that the infant is born into this world with a ready-made mechanism which can perform these extraordinary feats. It is quite true that the telephone exchange is already in being, with its operators, its instruments, and its installation of wires; but to start the machinery, the necessary stimulus is required. The necessary stimulus is variation of temperature in the outside world, and for the normal development of this function, the stimulus must be constantly repeated; the nerve centre or exchange must, in fact, be taught by experience. The education of this centre is to my mind of the greatest importance, for on it we largely depend for immunity to chills and colds. Infants and children who have not been taught by the proper experience, and by the proper forms of stimuli, to bring the appropriate reaction into play, are like hot-house exotics which wither up at the first breath of fresh air. I cannot now enter into the details of training these centres in infants and children, but I can assure you that it has a far more important influence in the prevention of consumption than the open-air treatment has on the cure.

I have given you an example of the manner in which an external stimulus can evoke an independent response in causing particular muscular movements. I have also given you an example of the manner in which a complicated mechanism, such as that of temperature regulation, can not only be excited to activity, but also trained to efficient automatism by an appropriate series of stimuli. I may now pass on to a further point in the argument—namely, the influence of one stimulus on the reaction which will follow on the next, or on a series of stimuli. Automatism is acquired when stimuli are applied continuously or in a continuous series. Respiration, for instance, is automatic, because the stimuli which provoke the function are always present, and have been so not only since man has been man, but when, to be guilty

of an Irishism, he was a lower animal. Respiration is, therefore, automatic from birth onward, and so are most or all of our organic functions.

But even these strongly-stereotyped automatic mechanisms can be modified or altered if the series of stimuli to which they are exposed after birth is of a new or modified variety. Let me give an example, the beating of the heart is perhaps the most strongly-stereotyped automatic mechanism we possess, but the heart's action can be temporarily modified if we apply a series of appropriate stimuli. You know that coffee and tea and tobacco are heart stimulants; if you indulge in these luxuries sufficiently you may entirely alter the rhythm of the heart and, possibly, you may so disturb its normal action as to produce complete irregularity and palpitation. Psychological influence can also have the same effect. You know the stimulating action of the emotions; the child who is always crying and giving way to fits of temper is liable to develop an irritable heart, and the soldier who goes a-campaigning and is subject to the alarms of his calling, often returns home with what is called the soldier's heart, an excited organ with a very irregular rhythm.

I cannot urge too strongly the enormous importance of founding all the automatic functions of life upon a good model. Automatism is very easily acquired in childhood, but only with difficulty in old age. You cannot teach an old dog new tricks. Now if we analyse this very familiar knowledge it only means that when any particular stimulus acts upon our telephone system, the first response is the most important, for it serves as a model for those responses which follow. If the first response is a good one, those that succeed it will probably be good also. Let me illustrate this in the forming of habits of digestion. If the new-born infant receives its natural nourishment, namely, its mother's milk, the stimulus it receives is a perfectly normal one, for it is the stimulus which has throughout the ages made the stomach what it is. But suppose we fill the infant's stomach with cow's milk, which is the natural stimulus for the development of the calf's stomach, the probability, nay, almost the certainty, is that the infant will vomit, that is to say, the first response the stomach gives to the stimulus of food is modelled on faulty lines. If the infant is again given cow's milk it will almost certainly vomit a second time, and the same phenomenon will recur with successive feedings. The reaction then becomes stereotyped, and all those familiar with the management of infants will bear me out that habits thus acquired are exceedingly difficult to break, however much the form of feeding is subsequently changed. And so it is with a thousand and one bad habits which at an

early date become stereotyped or fixed. A child gets a catarrh of the nose, and to relieve the itching it scratches the mucous membrane; this leads to an automatic habit of nose-picking, and so it is with biting of the nails, and the making of grimaces. Any constant repetition of one particular telephone call soon makes the mechanism practically automatic and independent of the will.

A thorough understanding of the physiology of childhood is absolutely essential for the proper management of the physical education of the developing child. I regret that in the time allowed me for this lecture I have not been able to point out more of the useful applications of such knowledge. But an understanding of the general principle that development depends on the application of stimuli will enable you to trace out for yourselves many of the ultimate causes of success and failure in physical and moral training.

ANNUAL CONFERENCE.

THIS will be held at Manchester on May 6th, 7th and 8th, 1909. The subject for discussion is "Stages and Phases of Child-Development." The meetings will be held in the Whitworth Hall by kind permission of the University Council.

A Reception will be held in the Whitworth Hall of the University on Thursday Evening, May 6th, 1909, after which Professor FINDLAY, M.A., Ph.D., will deliver the Presidential Address.

On Friday, May 7th, Lectures will be delivered on :—

"Normal Development from a Psychological Point of View." By Professor C. LLOYD MORGAN, LL.D., F.R.S.

"The Growth of the Imagination." By J. W. SLAUGHTER, Ph.D.

"Stages and Phases of Child-Development: Physiological Variations." By JAMES KERR, M.A., M.D., D.P.H.

On Saturday, May 8th, on :—

"The Study of Types in the Mental Life of Children." By Professor J. A. GREEN, M.A.

The meeting at which reports will be taken, and the Council Meeting, will be held on Friday.

Tickets to all the meetings on May 7th and 8th will be issued to non-members at 1*s.* each.

Hospitality will be offered to delegates and visitors from a distance so far as is possible. Application to be made at an early date to Miss E. NEEDHAM, M.A., 4, Lancaster Road, Didsbury, Hon. Secretary of Child-Study Society, Manchester.

CATALOGUE OF THE LIBRARY OF THE CHILD-STUDY SOCIETY.

THE books in this collection are housed at the Library of the London School of Economics, Clare Market, London, W.C., and may be borrowed by any member of a constituent society of the Child-Study Society, either through personal application at the School of Economics or by post. Members have also the privilege of consulting and reading other works in the Library of the School of Economics, which is open between the hours of 10 A.M. and 9 P.M. (1 P.M. on Saturdays), except during vacations, when the hours are from 10 A.M. to 6 P.M. (1 P.M. on Saturdays).

Applications by post should be sent to the Librarian of the School of Economics as above, enclosing threepence in stamps for a single volume and one penny for each additional volume or copy of a periodical; there should also be given as reference the name and address of the Hon. Secretary of the Society of which the applicant is a member.

Not more than three volumes may be borrowed at one time, and for this purpose three parts of a periodical shall count as one volume. Books may be retained for two months, but may be recalled at any time after the first fifteen days, should another member in the meantime have applied for them.

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PERIODICAL REVIEWS, ETC.

Certain numbers of the following Periodical Publications are in the collection, the sets being in only a few cases anything like complete.

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American History Leaflets. (New York.)

American Journal of Psychology. (June, 1894. Worcester, Mass.)

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Kindergarten Messenger and the New Educator. (Milwaukee.)
North-Western Monthly. (Lincoln, Neb.)
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Psychological Clinic. (Philadelphia.) Public School Magazine. (Oct. 1901.)
Review of Education. (Chicago.)
Revue Internationale de Pédagogie Comparative. (Nantes and Paris.)
Revue de Psychologie Clinique et Therapeutique. (Paris.)
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Seeking and Saving. (Formerly Reformatory and Refuge Journal.) (Mar. 1904.)
Vaktijdschrift voor Onderwijzers. (Amsterdam.)
Zeitschrift fur Paedagogische Psychologie. (Berlin.)
Zeitschrift fur Paedagogische Psychologie, Pathologie und Hygiene. (Berlin.)
Zeitschrift fur Philosophie und Paedagogik. (Langensalza.)

N.B.—A Bibliography of Child-Study is compiled annually by DR. WILSON, Clark University, Worcester, Massachusetts, and published in the *Pedagogical Seminary*. Bound vol. 1898–1907 now in the Library.

REVIEWS.

An Introduction to Psychology, for the use of Teachers. By J. H. Wimms, M.A., B.Sc. (Charles & Dible. 1*s.* 6*d.*) pp. vi, 129.

We believe that all small books for adult students are big mistakes. As a suggestive preparation for a course of lectures, and for revision purposes, this book might prove useful.

To define mind as "the sum total of the mental processes experienced during the lifetime of any individual," suggests that we have no mind till we are dead. The statement, on page 50, that "the teacher cannot train the senses at all in the true sense of the term," is likely to prove seriously misleading. Despite several such blemishes there is far more that is sound and helpful than usually appears in books of this type.

H. H.

National Home Reading Union Magazine.

We have another welcome evidence of the extension of the Child-Study movement in the inclusion by the Union of a course of Child-Study in their programme for the current year. Mr. Thiselton Mark, of Manchester University, is writing a series of articles on Child-Study for their Magazine, which with the prescribed course of reading in the subject will guide those interested in the movement to increased knowledge of all the questions involved in the modern method of envisaging the child.

S. Y.

Education and the Heredity Spectre, by F. H. HAYWARD, D.Litt. M.A. (Halls & Co. 1*s.*)

This is an essay to prove that "human life can be built up from without, and its form and tendency determined by an artificial arrangement by another of the ideas it is to assimilate."

In the first part of his argument Dr. Hayward ridicules the "plant" metaphor of Froebel and criticises severely the racial explanation of national characteristics; he examines the development and value of instincts, quotes with approval Ray Lankester's dictum that "educability can be transmitted, but not its results," and concludes that for man Heredity has been displaced by Plasticity. Interesting evidences are adduced to prove the influence of "ideas" on the development of the mind, and the value of the social tradition in the formation of character as a counterblast to the dismal doctrines of the Biometricians.

Recognizing the importance of proving that the numerous offspring of the more degraded and prolific members of the community are no less educable than those of the less dependent classes, Dr. Hayward boldly attributes the differences observed to differences of nutrition, physiological development, and social environment. He assumes that "education can vastly narrow the gap that is supposed to separate the normal from the abnormal." But unless the children of the dependent classes *are* as educable as those of the less fertile but independent classes, it seems obvious that the cost of learning to live must increase with each successive generation, a prospect which would dismay anyone but a professional educationist.

In the second half of his book Mr. Hayward insists on the value of non-professional but explicit moral instruction given in connection with the ordinary subjects of the curriculum. Here the Author questions the power of children to draw morals for themselves except from stories in which "the moral" is artificially made repulsively obvious. He justly attributes the success of the "Public Schools" to their ideals; the school tradition in them, he says, forms the real syllabus of moral instruction. Without unduly belittling the influence of moral "atmospheres" and "habits" he contends powerfully that these must be given definition and significance by the use of language and the inculcation of general principles of conduct, because "if instruction without training is empty, training without instruction is blind."

This book may be cordially recommended for perusal, for it is well calculated to provide those who hold different opinions with food for reflection.

A. B. K.

The Primary Curriculum. By F. H. HAYWARD, D.Lit., M.A., B.Sc. (Ralph Holland & Co. 4*s.* net.) pp. viii, 465.

Dr. Hayward is always interesting and stimulating, as he is always polemical and provocative. Critically to review this book would, from the present writer's point of view, be to write another book. One can only make a few statements about it. It is a book rather for expert critics than for young students, though the latter are supposed to be its readers. For those who would like to whet their wits on educational controversy, here is excellent entertainment.

The aim of the book is to set forth the author's, and others', views on the principles and methods of teaching the subjects ordinarily taught in the public elementary schools in England. The standpoint appears to us to be that of the Encyclopædists; and to treat the subjects as advocated would need a mature Hayward as teacher and juvenile Haywards as scholars. But the book is well worth reading.

H. H.

Archives de Psychologie. (Williams & Norgate, October, 1908. 3fr. 50c. December, 1908. 5 fr.)

Only one article in the October issue directly concerns children, and that is by M. Guido Guidi on "Suggestibility." By means of a specially designed instrument the writer tested the power of suggestion on 217 pupils of a large communal girls' school. The results are interesting, though not conclusive. Suggestibility steadily decreased from the lowest to the highest class; the teachers curiously enough showed themselves more amenable to suggestion than the latter. But the decrease by age was not so regular; the range being from six to fifteen years, those at nine years showed the highest percentage of replies due to suggestion, 62·5 per cent., those at thirteen years the lowest, 21·4 per cent. Though Mr. Guidi does not draw the conclusion, this would seem to indicate that some of the oldest children were not in the highest class, and were thus probably less intelligent than others two years younger. This may account for their greater suggestibility quite as much as the increased rate of growth offered as a reason; but if so, what are we to say of the teachers, whose percentage, 36·6, was higher than that of the pupils from twelve to fifteen years? The method seems, however, to be vitiated by two facts; in the first place the experimenter, in telling the pupils that a certain small box was a small warmed stove, was saying what was not true, and many must soon have discovered this fact; in the second, no means were provided for discriminating between those who really thought they experienced a sensation of warmth (i.e. real suggestibles), and those who felt nothing of the kind, but said they did, because it was most evidently what they were expected to say.

There is an important article of psychological interest in this issue on "The Experimental Study of Judgment and Thought," in the main an interesting *résumé* of some German enquiries, and a contribution to the study of Vocation by M. Jonckheere.

All interested, either in the teaching of drawing or in the study of children's drawings, should read the principal article in the December issue, by M. E. Ivanoff, on "Experimental Investigations into the Drawing Power of the Pupils of French Switzerland." M. Ivanoff gives a review of what has been done, and takes as his problem one not yet adequately treated, What relations exist between skill in drawing, and other intellectual and moral powers? The questionnaire drawn up by M. Claparède is a good one, and it might well be utilised in an English school, and some valuable comparisons made. The number of papers examined, 2441, is large enough to make the conclusions reliable, and these are noteworthy. In the main they are: "That boys are more often good at drawing, and less often bad at drawing, than girls; that there is direct correlation between skill in drawing and aptitude for school-work in general, and such correlation can be found also in separate subjects, as in writing, in geography, and history, in both of which the author thinks boys are better than girls, in arithmetic, where it is more marked with the girls than the boys, and in composition; but he does not think that there is clear correlation between drawing and language, including under this head, reading, recitation, spelling, and grammar. Mr. Ivanoff further discusses the connection between skill in drawing and intellectual and moral characters, and then gives a psychological analysis of the results, and some pedagogical conclusions, with finally nine pages of interesting drawings, such as Miss Partridge presented us with in the *Paidologist* (vol. vi.). The article deserves more space than we can give to it and will well repay consideration; parallel studies on the same lines should be interesting.

The vexed question of spelling has been to the fore in the Archives of late, and M. Jonckheere has an article here on "The Influence of the Mode of Spelling on the Memory for Orthography," concluding that in learning spelling, "the words should be read aloud, then spelt aloud, letter by letter, without saying the syllables, but with a slight pause between them, and finally the words should be copied."

T. G. T.

L'Educateur Moderne, January and February, 1909. (Henry Paulin & Cie. Paris. 11 frs. per annum.)

This useful little publication enters upon its fourth year under the direction of M. Gabriel Compayré, whose name is sufficiently well-known beyond his own country as one of its foremost writers upon educational subjects.

The January issue opens with an introduction and a notable article dealing with the difficult problems underlying sexual instruction, by the new editor; it concludes with some interesting notes, to be continued, written by a mother in the true spirit of "Child-Study," which, if not scientific in form, give frequent matter for comparison with other records and are often amusing. He seems to have been a bonny little lad whose record is to be sketched, "From One Day to Ten Years."

The February number is eloquent of the interest taken in educational matters outside France, in an article on the withdrawal of our recent Education Bill, with a generally accurate presentation of the complicated position, and in some notes at the end on English and foreign education, which provide instructive reading. But the most important contribution is one by M. Roger Cousinet, in which he vigorously claims, on good pedagogical grounds, that more time should be given to literature and less to the sciences and more formal studies, in French primary schools. The argument is applicable to some of our own primary school problems. The reviews of books and notices of educational societies are very informative.

T. G. T.

The Pedagogical Seminary.—Edited by G. Stanley Hall. Vol. xv., Nos. 2 and 3, for June and September, 1908.

The importance now attached to the physical side of child nature is witnessed by two articles in No. 2, the issue for June—"The Hygiene of the Nose" by Professor W. H. Burnham. This article adduces evidence from Leipzig, Stockholm and New York as to the prevalence of adenoids among school-children and their influence in retarding mental development. It is urged that "teachers should learn to distinguish this disorder" and that "in this matter no devices of formal education can atone for hygienic neglect." "The Report of the Committee on School Hygiene, Worcester, Mass.," deals with the effects of school closure in outbreaks of diphtheria, scarlet fever and measles, and discusses the results of medical inspection and the provision of play spaces in Worcester, Mass.

In the June number there is an interesting article, called a "Genetic Study of Veracity," by Edward P. St. John. The writer traces through the plant and animal series the development of a system of signs, visible or vocal, which are self-revealing and which operate beneficially for the perpetuation of the species. Evidence of misrepresentation of the self, *e.g.*, devices of protective mimicry, is also given. The writer thinks that truth has not evolved from falsehood, as some affirm, but has always played the more important part in the evolutionary series of life. He thinks that the possibility of misrepresentation of fact for a selfish end first occurred to man or his pre-human ancestor through observation of the instinctive though not necessarily conscious deception in animals. In the same way in the child the transition is from the instinctive misrepresentation of fact due to vivid imagination to the deliberate untruth; the transition being facilitated by the rebukes and warnings of adults who misinterpret the earlier stages.

The September number contains addresses by Dr. G. Stanley Hall on "Recent Advances in Child-Study," on "The Psychology of Music, and the Light it Throws upon Musical Education," on "The Culture Value of Modern as compared with that of Ancient Languages," etc. and a bibliography of Child-Study for 1907.

S. Y.

The Psychological Clinic. Edited by LIGHTNER WITMER, Ph.D. (University of Pennsylvania).

Vol. 2, No. 5.—This number contains an article by Leonard P. Ayres, "Some Factors Affecting Grade Distribution"; and M. Keiver Smith, Ph.D. contributes another paper on the "Training of a Backward Boy." In the former the author attributes the gradual diminution in the number of children in the higher forms of American schools, compared with the numbers in the lower forms, to three causes :— Increase in the Population, and consequent increase in the number of younger children; Retardation, children do not invariably advance according to age; Elimination, by death or withdrawal from school. The latter article gives an account of the beneficial effect of skilful training on "Willie." Specially interesting is the conscious use of "Suggestion" and the toleration of motor activity while thinking and talking. The paper bristles with helpful ideas.

Vol. 2, No. 6, contains, "Treatment and Cure of a Case of Mental and Moral Deficiency," by the Editor. Dr. Witmer considers many cases of feeble-mindedness to be rather cases of retardation, and is optimistic in his opinion of such cases. He gives a detailed account of his treatment of a boy of eleven years of age, who was previously diagnosed as "foolish and weak-minded" and as incapable of ordinary education. Under Dr. Witmer's treatment the boy was enabled, in the course of a few months, to take his place with other boys slightly younger than himself at a public school. This number also has "Classification and Education of Afflicted Children," by Felix Arnold, who classifies children in seven classes, describes each class, and suggests educational treatment for them all.

Vol. 2, No. 7.—In the opening Paper, Dr. Elmer Jones shows how a backward boy was brought to make normal progress in learning to read, by individual teaching. One longs to know more of the method used with such success. Another article by Dr. Blanche Sterling is an unvarnished report of the effect of motor training on the mind of a defective boy. This number concludes with an interesting review and criticism of three works treating of combined Religion, Psychology, and Medicine, as a means of healing, under the title, "The Emmanuel Movement."

Vol. 2, No. 8, contains "Some Uses of Statistics in the Supervision of Schools," by R. P. Falkner, which shows how inferences, fertile in results, may be drawn from apparently dull school statistics; also "An Examination of the Eyes, Ears, and Throats of Children in the Public Schools of Jefferson City, Mo.," by C. M. Sneed and G. M. Whipple. A continuation of the interesting review of books bearing on "Mental Healing and the Emmanuel Movement," and News and Comments treating chiefly of School Hygiene and Retardation complete the number.

Vol. 2, No. 9, contains, "The Elimination of Pupils from School," by Dr. R. P. Falkner: a critical enquiry into recent reports showing an apparently alarming falling-off in the number of children as they pass into the upper classes of certain American schools. Also "Association Tests in Practical Work for the Insane," by C. H. Town, which relates how the association tests suggested by Galton, when applied to the insane, elicit an expression of illusory ideas and other mental content, of which a knowledge is very valuable to those entrusted with their treatment. In this number the series of papers on the Emmanuel movement is concluded, the last article consisting chiefly of a severe criticism of Professor James of Harvard and his methods, especially that employed in "Varieties of Religious Experience."

We strongly recommend this magazine to all those who are interested in backward and defective children; it is both practical and interesting.

M. L.

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Vol. 2.—No. 2. JULY, 1909.

Child-Study.

The Journal of the Child-Study Society.

AIMS AND METHODS IN CHILD-STUDY.

By Professor FINDLAY, M.A., Ph.D.

Presidential Address to the Manchester Conference, May 6, 1909.

This is now the twelfth occasion on which the various societies devoted to Child-Study have met in conference. Year by year topics of increasing importance have been brought before your notice, and the names of the distinguished men whom the Council has this year invited to read papers are a sufficient indication of the important work which these societies have to do.

But twelve years only constitute a period of infancy in the development of the task which can be performed. Child-Study is still in its beginnings—at least in Great Britain; and while many men of science, as well as teachers, recognize and welcome the new-comer, there still exists in many quarters, if not hostility, at least uncertainty and suspicion as to the scope and aims of the new science. I have thought it well therefore, in preparation for this opening meeting, to make an inquiry into the various fields of research included under the term Child-Study, and to present the results to you in a brief summary.

First of all, let us be clear as to the underlying point of view from which all this investigation is undertaken. Everyone who is concerned with the care of the young, whether as parent, teacher or administrator, holds his own general view of life, of life's aims, of what he desires to be achieved by himself and his kind, and from this attitude springs, inevitably, one's view as to the way in which children should be brought up. I say this is inevitable, and until the modern era no one supposed that there was any other way of forming a theory, or establishing a practice, of education. Thus it has come about that not merely common opinion on these matters has been based on personal bias, but there have been evolved great "systems" of education, deduced direct from a philosopher's view of life. Almost all the professional pedagogy which was taught in this country up to twenty years ago took its rise

in theory of this kind, influenced in succession by great thinkers—of whom Herbert Spencer in this country and Friedrich Herbart in Germany are familiar examples.

I repeat that this is inevitable, so long as large tracts of human action, mental and spiritual alike, baffle any scientific explanation; and hence the practical man must discharge his obligations by the aid of such enlightenment as he can secure. And our practice, both as parents in the home and as teachers in the school, will always be governed, whether consciously or unconsciously, by the spirit of our time and by the philosophy of great minds.

But it was one of the tasks of the nineteenth century to endeavour (not only in the realm of natural science, but of the social sciences also) to correct personal bias by the application of objective and impersonal tests, by the investigation of facts which stand apart from the subjective predisposition or isolated experience. Now the life of the child has been one of the last, as it is also one of the most important spheres of human activity in which such standards of judgment, such correctives, are being sought. The purpose then of Child-Study is not to produce a new system of education, but to afford scientific procedure,[1] by which all plans for the upbringing of children can be investigated. It bids us, in this entire realm of affairs, "lay our minds alongside of facts." How greatly this point of view is needed by teachers and students has been recently impressed upon us in an address delivered recently to our local Child-study Society[2] in Manchester by Professor Alexander, and I can refer to that address for a fuller exposition of this fundamental position, especially as affecting the business of the teacher.

Let me illustrate by comparison with the methods of another profession which, as I shall show, is working in close alliance with teachers in this task of Child-Study. There is much controversy as to the place of Latin in a liberal education; as much as there has been in the medical profession as to the employment of alcoholic liquors, both in sickness and health. Now it may well be that the latter problem is much easier than the former, but whereas in education the problem is never discussed except by reference to personal opinion[3] and tradition, medical practice is guided more and more by the result of careful elaborate experiment and research.

It is, of course, open to anyone to assert that the problem of Latin, being concerned with mental processes, is so intricate and the factors

[1] See *Meumann*, vorslesungen über experimentelle Pädagogik, Band I. (Engelmann, Leipzig, 1907), especially the Introduction and the first lecture.

[2] *Journal of Education*, March and April, 1909.

[3] See *The University Review*, April, 1909.

so complex as to baffle the inquirer; and, as a result, even men trained in scientific habits may refuse (as some of them do) to countenance the efforts made to investigate mental development; but, in view of the achievements of modern science, who can claim to mark off this field and affirm that this is the one sphere of human activity which is to be left to the vagaries of caprice? Grant, as everyone must grant, that the personal equation counts for much; grant that with us (as, indeed, in all the professions) success depends upon a man's view of life, his sympathies, his upbringing:—Why, the very purpose of *study*, of training, is to induce an attitude of mind which enables a man to get away *from* these subjective predilections, to look at things objectively, to observe the mechanism; to submit his practice to the guidance of facts at the expense, if needs be, of his prejudices.

Some may feel that the cool, detached attitude of the man of science is out of place in education, that it is incompatible with the sympathetic, friendly behaviour required of a teacher. But he who offers this criticism is attacking not only our profession; he must reckon also with the physician, the clergyman: in short, with workers in all branches of human activity where science has effected an entrance.[1] Study is not a hindrance to successful practice, but it is rather to be regarded as the new weapon which has been discovered to enable the practitioner to produce better results, both for himself and for those who will succeed him.

2. Let us then review the efforts that have been made, with this aim in view, to study the life of the child.

In the widest sense, this study may be taken to include the physical as well as the mental life; but our province is usually confined to the latter, since it is the province of the physician to treat both of method and results when concerned with health and disease in the body. Here, as in many other matters relating to education, we are indebted to the medical profession, not only as the colleague of the teacher, but as a guide when we begin to regard our profession as a study.

There are other branches of research which are not exactly within the sphere of Child-Study, but are closely allied to it. I need only refer in passing to Comparative Psychology, for the first speaker at our conference to-morrow, Principal Lloyd Morgan, is sufficient evidence of the aid that is being rendered to our knowledge of children by inquiry into the mental life of animals. And we are equally indebted to the anthropologists, who investigate the childhood of our race. It is

[1] For an interesting controversy on this point see *Münsterberg: Psychology and Life*, pp. 100–144 (Constable, London), and the reply in *Dewey's Psychology and Social Practice* (*Chicago University Press*).

true that parallels between a modern child and a primitive savage are vague, and the attempts, such as those made by some of the Herbartians, to obtain plans for a curriculum from such sources are of little value; but it is also true that the studies of early arts (such as those of music by Cecil Sharp, of games by Karl Groos, and others), and of primitive industries, are rendering important aid in explaining the activities of our present-day children.

When we examine the field of inquiry which is more definitely termed Child-Study, we find a variety of modes of investigation, which may be classed under three or four main types. The first of these in point of time was, naturally enough, concerned with the observation of one or two children at a time.

Long before anything like formal Child-Study was undertaken, we find such observation playing an important part in educational reform, and we rank Pestalozzi as the founder of the science of education because his methods were consciously based upon, and were constantly corrected by, his study of children's ways. But it was much later that scientific men, such as Darwin, began to put together elaborate descriptions of the phenomena of childhood, and many such accounts were prepared before it was possible to interpret these in terms of function. And unfortunately, for the practical purposes of education, these descriptions were usually confined to the period of infancy. Our English psychologist, Professor Sully[1] was one of the first to carry his records beyond the infant stages, but his work was not comprehensive, and even he scarcely reached to school age.

There is, however, another direction in which most fruitful results have been obtained by careful study of individual cases. The study of defect, of abnormality, of disease has been as useful for mental hygiene as it has been in advancing the physician's knowledge of physical hygiene; and it is to those, nearly always medical men, who have had the care of the deaf, the blind, the defective and the idiot child, that we probably owe more than to any other group of child-students. In Manchester our Society has recently had to mourn the loss of Dr. Henry Ashby, whose work, not only as a physician to children, but especially as the adviser to the Manchester Education Authority in the Special Schools, was of a unique character. In London, I believe that Dr. Francis Warner and others who founded the Childhood Society (now happily amalgamated with our constituent societies) were largely concerned in developing these special modes of investigation, and the volume of Transactions of that society, with its other publications, form contributions of permanent value.

Now, at the opposite pole from this study by medical men of

[1] *Studies in Childhood.* (Longmans, London.)

defectives there is a region of inquiry which is equally fascinating although almost an untrodden field. I refer to the study of the *precocious* child. Here is a phenomenon to which no parallel can be found in the life of the body. We can understand an abnormal and defective body, but the body cannot be supernormal; excess in height, weight, muscle, is a defect and not an advantage. But a mental giant, a supernormal mind, secure our admiration: a John Stuart Mill, a Mischa Elman, a Millais, a Black Prince at Crecy, these are specimens which still await scientific research. When we read such a pathetic record as that called "Father and Son," which recently occupied all our minds, we recognize surely the tragic importance, both for the gifted individual himself and for the society he serves, of a better understanding of the mechanism of mental capacity. Let us assume, for the sake of argument, that the system which James Mill followed in the education of his marvellous son was mistaken, and that John Stuart Mill became a great man in spite of it; let us suppose, what is at least possible, that some of his powers came to maturity too soon, and that other sides of his mental life were repressed: why, there is no limit to what he might have achieved; instead of being one among the thinkers and statesmen of his age, he might have been an influence for all time. It is true that this problem of precocity has been attacked by Galton, Karl Pearson and others from one side, that of heredity, but the problem is a much larger one than merely one of breeding. I venture to say there is no field of research open to a gifted psychologist more likely to benefit the human race in the immediate future than the study of precocity.

For you will observe how there are involved in it two practical problems which everyone concerned in education has to deal with. The first will be best recognised by the phrase "the educational ladder,"—not, as vulgarly understood, a device by which a man may mount to a certain height of success, and then kick from behind him the means by which he has risen: but in the nobler sense, as procedure by which society seeks to encourage those whose mental powers prove them to be fit for finer work. We are spending millions of money every year on this business, and it is generally agreed, I think, that our methods of selection are crude in the extreme: not only have we no scientific procedure in this matter, not only do we lack a well-grounded doctrine of what is meant by mental capacity, but we have scarcely any recognition of the fact that trained scientific advice is *required* to assist in the expenditure of these enormous sums. In place of that what do we find? As I pointed out in the opening of this address, the question has to be settled by the personal bias and prejudice of those who from time to time control the expenditure. And it should be noted that we are here

confronted with a special difficulty,—every one who gains an important voice in public affairs is himself an example of precocity—the gifts and powers that enable a man or woman to obtain even moderate eminence take their rise in childhood; and in a problem such as this, where there is no objective method and test, where every one has an opinion, you will find that we are all influenced to an extraordinary extent, not only by our present tastes and ideals, but by the recollections, usually very blurred and faulty, of our own upbringing.

The second practical problem is, I take it, the one which occupies our special attention in this Conference, viz., what is the capacity, and what should be the manifestation of capacity, of the average normal child in the successive years of his development? Granted that the human being is liable to exhibit extraordinary variations in precocity as well as depths of imbecility, still there is a norm, or rather a series of norms, for each nation and for every section of a nation. And it is the first business of an organiser in education to be aware of the average standard to be expected, in the entire range where the mental life can express itself.

May I be forgiven if, in an audience largely composed of teachers and scholars, I indicate one hindrance which prevents us from rendering adequate service in this investigation. As a rule we have become teachers, have been selected for this duty, because of unusual gifts and capacities of the special type called intellectual; we have been more or less precocious in the traditional round of studies which are called "learned." As a result, we ought to admit that our estimates of the average are liable to grave error, overestimating the child's average power in intellect, underestimating his power in those regions of life which make appeal to emotion and volition. Thus the machinery of school works in a vicious circle: we tend to breed our kind: both our tastes and our standards tend to perpetuate the succession. If this contention be in any degree true, it strengthens the plea for impartial scientific inquiry into the growth of mental capacity and the modes of its expression.

3. So far I have only mentioned one method by which such inquiry has been pursued, viz., by detailed record of the life of individual children.

A second method, of which nothing has been done, and little even heard, in this country may be called the laboratory method, since it relies upon those physical reactions, in intervals of time and space, which are the recognized tools of the laboratory. This method of Child-Study owes its origin to the experimental psychologists. There is no need for me to dwell upon the importance of experiment to the psychologist; our Universities are now everywhere recognising that the student of

mind should be made familiar with laboratory methods. For more than forty years work of this kind has been pursued in German universities, and we in England are following suit in our own leisurely way. But the endeavour to utilize these methods for the benefit of children is of more recent date, and it is only within the last ten years that men trained in psychological laboratories have specialized on school problems.

I must not detain you either with a defence of the labours of these students, or with an explanation of the distinctive advantages which they possess. The elaborate work recently produced by Professor Meumann gives not only a survey of the work done, but a clear account of the methods. One feature in the progress of these researches is worth emphasizing. The psychologists who first began to employ these methods were concerned mainly in analysing the structure of the mind, and turned to the laboratory to help them in solving abstract psychological problems; processes such as memory, attention, etc., were singled out, and the investigation was ended when some aspect of mental structure was elucidated. But this kind of enquiry, valuable as it has been, lay somewhat remote from childhood, partly because the child's mental life differs in important respects from that of the adult; partly because of fundamental differences among psychologists themselves as to the operation of mind; the statistical result as recorded by instruments might be accurate enough, but the interpretation of these in terms of mental function left abundant room for controversy. Thus while the laboratory has been helpful in dealing with sensation and other topics closely associated with the nervous system, its services became less obvious in regions where purely mental processes were placed under experiment.

Hence we find that of recent years the laboratory has taken up the task from the other end, and has set itself to tackle definite pedagogic problems; instead of beginning with an inquiry into some mental abstraction, Meumann, Binet, Lay and others have selected some more concrete manifestation of the child's activity (as *e.g.* in language), and have attempted to solve specific practical problems which present difficulty to parent and teacher. Thus we have examples of work covering almost every branch of school instruction, although, as far as I can judge, the most valuable results have so far been obtained in dealing with the language arts of reading, writing, spelling and composition, where reaction from sense, impression in sight, sound, etc., are very important and can be readily measured. Thus a type of laboratory has been established, which bears a new name—the pedagogical laboratory—with a specific duty to investigate children's performances and to provide teachers and all concerned with a standard by which to judge

both of method and of result. In the preface to his comprehensive book on *Experimental Pedagogy*, Meumann mentions not only Germany and France as pioneers in this work, but most of the civilized countries of the world, he says, now possess such institutions, Turkey, Great Britain and Spain being the prominent exceptions.

4. The third method to which I shall allude has claimed more attention in England and Scotland. One of the first American psychologists to work in the German laboratory was Stanley Hall (who later on held the Chair of Psychology at Johns Hopkins University and finally founded the Clark University in Massachusetts). Now President Hall appears to have been dissatisfied with laboratory methods, partly for the reasons that I have indicated, and he therefore set to work to investigate mental output by a method which he sometimes calls the Census Method, and I think this is the best title to give to it. Stanley Hall's pupils rapidly became influential in the United States: his method was widely adopted and the name Child-Study was used to identify it. Under that title some women-teachers who visited America in 1893 and 1894 introduced his work to the notice of English and Scotch teachers, and laid the foundations of the Child-Study movement in London and Edinburgh.

Most of this audience will be familiar with examples of this form of investigation, but to some of you it may not be well known, so I offer a very simple illustration (taken from Earl Barnes' *Studies in Education*, Vol. II.). An inquiry was conducted in London board schools by teachers under the direction of Professor Earl Barnes, to whom this Society owes so much. It was entitled "The Prettiest Thing." The teacher of art requires to know what kind of reaction is exhibited by the child at different ages in relation to objects of beauty which are about him. So the question was asked of 700 children, varying from seven to fourteen years of age, "to describe the prettiest thing they had ever seen, and say why they thought it pretty." The results were analysed in percentages as a census table and charted. I will not detain you with a discussion of these charts, except to point out the surprising impression made on the London child after ten years of age by the spectacle or show, and the conclusion as to the possibility of utilizing the drama, as is being done just now in Whitechapel, for educational purposes. This study is not offered as a striking discovery, but merely as a minor example of students' work which can be explained in a few minutes.

The Census Method, then, aims to secure an average result by taking large numbers of children of one type into account and by grading the results according to age. Its popularity was due to the apparent simplicity of the machinery: teachers were readily induced to work together under the direction of an expert, and it looked as if the whole

story of children's development could be revealed by the use of appropriate *Questionnaires.*

One can scarcely be surprised that a method apparently so easy fell into some disrepute when it was employed by inexperienced students. An immense amount of material has been collected and published, some of which had better have been left in manuscript; nevertheless much wheat can be found among the chaff, and no one conversant with the progress of thought among teachers can doubt that the work of the best men in this movement, especially of Stanley Hall himself and of Earl Barnes, is of the highest scientific worth.

For some time it was supposed that the Census Method was a peculiarly American device, and on that account would be treated with the disapproval which scholars of the elder nations so often express for Yankee notions. But Germany and France have followed the American example, and the elaborate investigations made by Dr. Kerchensteiner, a Director of Education in Munich, sufficiently testify to the esteem in which the method is held on the Continent by those who are competent to judge. This eminent teacher spent some years in collecting and classifying hundreds of thousands of drawings executed under prescribed conditions, and he gives us in an elaborate work[1] a detailed sketch of the stages through which the normal child passes in this important field of experience. He adds to that some fruitful studies of precocious children.

5. Thus, by one method or another, we find that scholars in many parts of the world are now united in a type of investigation which has its distinct field, and which, in a broad view, emerges as *the teacher's science*, distinguished on the one hand from the art of education, on the other hand from the philosophy of education.

If we inquire what share Great Britain is taking in such research, one is bound to admit that we are only playing but a minor part. Only in one direction, that is in the medical or hygienic aspect of Child-Study can Great Britain claim an honourable share by the side of Europe or America. Quite recently Dr. Spearman, the experimental psychologist at University College, London, has asked permission from the L.C.C. Education Committee to conduct certain experiments on children; and one may hope that sooner or later our great cities may possess civic laboratories similar to those at work in Antwerp and in Chicago. Other Universities, including the one which has welcomed us this evening, are making provision for the study of experimental psychology, and we may expect that these departments will be placed at the service

[1] *Die Zeichnerische Begabung.* (Munich, 1906.)

of teachers, on lines similar to those developed so successfully in the Lehrer-vereine of Leipzig and Bremen.

There, however, are hopes for the future rather than achievement at the moment. If, at present, we in England appear unable to take our fair share, in comparison with other countries, in pedagogic research, the reason must partly be found, I think, in the profound scepticism which still controls public opinion in this country as to the value of schooling. There are, I have long been convinced, few countries of the civilized world which cherish a reliance on practical experience combined with a steady distrust of anything approaching theory. In some respects this caution is a sound instinct; and although myself an ardent "reformer," who has forsaken the ordinary paths of professional practice in order to blaze a road through untrodden fields, I have never felt it my business to upbraid either my colleagues in the schools, or my fellow-citizens, for abiding in the old ways, and for refusing to share my faith in the new science of education.

6. But there is one matter of supreme importance involved in the defence of Child-Study, and that is the *habit of mind* which these pursuits are calculated to engender—a habit which is essential to any real progress in the teacher's work, but most difficult for us to acquire, since our calling requires us all day long to live among our inferiors and to act with authority in their presence. This habit is the habit of *intellectual modesty*—the habit which marks every real man of science at work in his own laboratory, however cocksure and dogmatic he may be in handling public affairs outside his province. But how can this habit be acquired by young teachers when they issue forth, as they still do from our Universities, equipped with fragments of learning called Art or Science, and led to believe that their life's mission is to distribute a few crumbs from these fragments as food for children! What a novel world of experience is revealed to such a teacher (as happily is the case with the members of this Society and many others outside of it) by the discovery that the child is so wholly a different organism from himself. And what a consolation it is to such an one, realizing at length his own shortcomings, both as a personality and as a student, to find that by patient and observant study of children he may render genuine service in his profession. We who advocate these studies maintain that it is not our function to hypnotize our scholars by the force of our personality, or to impress them from the lofty vantage-ground of our talents, but to stand aside and permit objective material to have free play upon their minds and hearts. Too long have we been willing to attempt the part of demigod to our young people, deserving the reproach that Ibsen so scathingly casts at ambitious parents.[1] And so, finally, when we come to inquire what positive results have been achieved by all this effort, I should put

first the pervasive influence of this habit of mind; for a fundamental habit such as this, when it becomes part of one's mental make-up, influences not only the detailed rubrics of one's daily practice, but the temper in which the teacher approaches every problem that comes before him. Perhaps, after an experience of over twenty years, in which I have been engaged off and on in attempting to train young teachers, I may testify that the influence of this intellectual attitude is of capital importance in the work of a training college.

For when a student once realizes that children belong to a different type to himself, that their emotions, their estimates of value, their inner life are remote from his own, he begins to have a respect for his profession, a conception of its ideals, which can scarcely be otherwise secured. More and more in these days we are commanded to engage ourselves and our scholars on so-called practical matters, on phenomena *i.e.*, which ignore the hidden springs of the spiritual life. Every effort is made to force into our schools the nostrums of competition, of cheap patriotism, of sensuous pleasure. But we who live among children—not only to play and work with them, but to study them,—we discover that the child retains within himself the seed of a spiritual life which will one day blossom and bear fruit when all our foolish vulgarities are withered and forgotten. If, then, the movement had done nothing more than alter the teacher's attitude, while engaged in laying the foundations for sound methods of research, the labours of twenty years in this new science would not have been wasted. But let us not suppose that men like Stanley Hall and Meumann and Binet are content merely to describe the result of research; they are applying their discoveries to the practical problem of home and school—and they mean business. It would require many such Addresses as this to review the lines on which they desire to effect reform, and I have only time to allude to one problem—that known as Manual Training or Handwork.

7. I find three things constantly emphasized by all these investigators which bear upon the matter of Handwork.

Firstly, they all agree that while Handwork must have an important place in children's activities between the ages of eight and twelve, they emphasize the importance of these years as the years when drill and practice in all fundamental arts can be acquired; and no vague scheme of play activities handed on from infant years should be allowed to replace the formation of good habits in the three R's, and in other elementary exercises. Secondly, all these investigators desire to see

[1] *Pillars of Society*, Act IV. Kernick to Olaf: "Henceforth you shall be allowed to grow up, not as the heir of my life-work, but as one who has a life-work of his own to come. . . . You shall be yourself, Olaf, and the rest may go as it will."

a great extension of manual exercise; they thoroughly support the popular movement, and strengthen it by putting it on a sound basis of mental development; but, thirdly, they go much further: they warn us that we cannot pour this new wine into the old bottles. If we attempt as many of the Manual Trainers are doing, to devise elaborate schemes on which every child shall produce pattern models according to the teacher's prescription, we shall merely be replacing one formalism by another; they tell us that the root of the mental life in these children is spontaneity, resource, self-confidence; in short, if your aim is to make real men and real women out of the active creatures, you must permit them a freedom, an elasticity, a variety of which the schools as yet have scarcely dreamt. This testimony is not merely an opinion from America, where every wild notion has its chance, but you will find it from Kerschensteiner at Munich, from Meumann, and, so far as I can learn, from everyone who is at work in this field. The problem of elementary education that lies before us is not merely to wedge in new occupations in wood or cardboard or clay, but how to re-shape the life inside the school so that the impulses towards spontaneous and lively expression which, up to thirteen years of age, are a mark of the child outside the school, may be utilized within the school and thus transform the entire process of learning.

Ladies and gentlemen, the task I set myself is done. I have sought to indicate how, by the dull and devious roads of census and of laboratory, men are painfully climping the steeps that lead to truth. If I possessed a finer imagination I might have sought a higher flight in the rarer atmosphere of literature and art. We might have sat at the feet of our great poet, whom the humblest student of children may claim as an ally and an interpreter. In all his later work Browning reveals a deep understanding of these matters, and he even writes a poem called Development, which is as true to nature as the melancholy Jaques in '*As you like it*' is false. Browning shows us that, while Child-Study may be concerned for the moment with our little ones, the story of development does not close at twenty-one or at fifty-one. He who in the modesty of the scientific spirit is willing to search for truth in schoolrooms and in nurseries may chance to find that there is an opening for growth and change in himself, and that even to old age the prospect of revelation may be undimmed. So as we look forward to that "last stage of all," we shall accept the greeting of Rabbi ben Ezra—

"Grow old along with me!
The best is yet to be,
The last of life, for which the first was made:
Our times are in His hand,
Who saith 'A whole I planned,
'Youth shews but half: trust God: see all, nor be afraid!'"

THE STUDY OF TYPES IN THE MENTAL LIFE OF CHILDREN.

By Professor J. A. GREEN, M.A.

Delivered before the Manchester Conference, May 8th, 1909.

An exaggerated consideration for the individual has never been possible in the schools since education became a business of state. Notwithstanding Herbart, it is under present circumstances idle to ask a teacher responsible for sixty children to have constant regard for the individuality of the children, and for my part I cannot help thinking that we might easily pass in the other direction to a position which would be almost more harmful than that which is necessarily characterised by a good deal of neglect of the differences between child and child; at least, it will be generally conceded that school education is on the whole better than private education as a preparation for life, and that one of the advantages of the school is its wholesome indifference to much that enters into the individuality of those who together make up the school community.

But people are not entirely unlike each other, and from Plato downwards the principle of natural types has been consciously or unconsciously assumed and acted upon. Plato's Republic is based, you will remember, upon the selection and even the breeding of men and women according to type. Moreover, the type was not wholly determined by physical considerations.

Before Plato's time, the doctors and physiologists had a classification based upon four cardinal juices that were supposed to enter into men's bodily constitution. From the names of these juices we have derived our words: Sanguine, Phlegmatic, Choleric, and Melancholy. Arabic doctors at a later date endeavoured to show that the mental characteristics of the individual depended upon the proportions of these four fundamental juices that entered into his physical composition. This was obviously a purely speculative addition to the more ancient physiology, but the psychological classification remained under the physiological terminology long after the physiology was given up. Modern philosophers have made valiant attempts to reconstitute the theory of the temperaments on a purely psychological basis. You will call to mind Kant's classical analysis in his Anthropology. Herbart, Bencke, Lotze have each thought the subject worthy of attention, and though we have probably given up attaching any peculiarly scientific

value to the division, we still find the words and the underlying ideas of the greatest service in distinguishing between human characteristics.

The question arises whether it is possible to discover types amongst our children—types that will stand objective examination, that will rest upon more or less exactly determinable qualities.

At this point, perhaps, it may be well to remind you that the study of types in the mental life of children may be pursued in various ways. As there is a marked difference between the adult type of mind and that of the child, we may expect to find typical changes through which the mind passes in its advance to maturity.

Thus we get a progressive or genetic method of comparison. This again may be pursued either by reference to the mind as a working whole or by attention to isolated aspects of its activities. Amongst students of children, perhaps the most interesting school that has adopted the first of these methods is that of the recapitulationists, who have been exceedingly ingenious in adapting their theory to this particular view of the problem. The position taken up demands a note of warning. Nothing is easier than to start with preconceptions of this kind, and to find justification for them in so complex a collection of facts as is presented in the child-world. Have you not noticed, for example, how little children shrink in fear when their elders assume the rôle of terrible monsters who threaten to eat them? You observe that the idea of the meal itself gives rise to no feelings of disgust; it is only the seriousness of the situation that alarms them. Surely this is reminiscent of a period in their intellectual ancestry when cannibalistic practice was common! A little fellow of four the other day, who had just partaken of a breakfast tongue, was contemplatively regarding the delicacy and wondering whence it came. "Tongue," he said quietly, "I suppose it comes from dead men." Again the complete absence of any feeling of horror is the striking feature. Could anything further be wanted to complete the proof that once upon a time our progenitors enjoyed the luxury of eating each other, and that children from two to four or five shew traces of this in the particular stage of development through which they are passing? How much of the child-observation which seeks evidence for the recapitulation theory is any better than this?

The first essential is surely observation of a scientific character, and wherever possible observation under known conditions which may be repeated with a view to testing the results. We must get rid of the prejudice that comes from preconceived theories, unless we regard them as tentative hypotheses, set up rather to guide our enquiries than to forestall the results. It is not due to any want of respect for Fröbel's

work and service, that one cites him as the typically unscientific observer. It will be urged—and rightly—that the intuitions of that great master have done more for our children than the work of any of his successors in the sphere of child-psychology, but to acquiesce willingly in this defence is not to give up the original position.

A more successful method of studying types in mental activity on the genetic plan is that which abandons the attempt to deal with the working mind as a whole, and attacks it in particular aspects—memory development, observation powers, capacity for attention, power of resistance to fatigue, etc.

To take *observation* as an illustration. Binet, Stern and others have worked at this problem with a view to finding out the reliability of children as witnesses—curious and interesting types of mental activity characteristic of different ages were discovered. The method consisted in shewing the children a picture for a short but measured period of time, after which they were asked to write down what they had seen, and were subsequently put through a series of pre-arranged questions. To summarise their results, they found that children, according to their age and their intellectual development, looked at the world from characteristically different points of view. Stern found three, if not four, distinct stages. The first he called the *substanz stadium*, in which only separate things and persons are noted. Towards the eighth year the child begins to look more carefully at what men are doing, and following upon that he becomes interested in space, time and causal relationships; finally comes a stage in which children look at things analytically and begin to notice their qualities. Whatever value we may attach to the particular results, they have at any rate the advantage of being tolerably definite, and the conclusions are based upon methods of research which can be repeated and modified at the convenience of the enquirer.

There is, however, another way of thinking about typical differences in the mental life of children, which is not genetic. It is based upon the idea that there are differences between children of the same age which are capable of qualitative and even of quantitative determination. Here again, however, the attempt to deal with such complexes as that of character, for example, has been given up as hopeless from the scientific standpoint, at any rate for the present. The elements that go to make up those complexes must first be effectively studied in relative isolation.

Perhaps the most interesting attempt towards a thorough study of differences in children on this "parallel" method is that of M. Alfred Binet, whose *Étude expérimentale de l'Intelligence* is probably known to you all. At the risk of boring you, I shall however venture to remind

you of Binet's work. His inquiry chiefly concerned two girls, members of his own family, respectively fourteen and thirteen years of age, and it extended over three years. Patience, he modestly says, is the chief lesson to be learned from his book. For the most part, he directed his attention to the higher intellectual operations—the content of thought, the relation of vocabulary to the process of thought, how thought develops itself, the relation of imagery to thought, the flow of ideas as seen in the act of completing sentences of which the first word or words is suggested. He does not neglect altogether quantitative comparisons. He gives interesting tables of differences in range of attention, in strength of memory and in reaction times.

One or two illustrations will illustrate his method, and at the same time bring out differences in the mental life of children, such as we are specially considering this morning.

On one occasion they were asked, each of them, to complete a number of sentences, of which the first word or two were given, *e.g.*, "I went into——" "It rains——" "The star——", etc.

Armande, the younger girl, wrote for the first sentence: "I went into the country by a shady path."

Marguerite: "I went into a shop and bought chocolates."

For the second, Armande produced: "It rains, and the ground is slippery, and the roads are very wet."

Marguerite: "It rains, and we have no umbrellas."

And for the third, Armande in poetic vein gave: "The star was shining and seemed to lead me; when I felt disheartened, I looked up at it and once again pursued my lonely path." Marguerite, the matter-of-fact person, wrote, "The Pole Star (Étoile polaire) is a part of the Little Bear."

In another series of tests, they were asked at various times to write lists of twenty words just as they came into their heads. After the exercise, M. Binet went through the list with each of the girls to find the origin, so to speak, of the word—what it stood for at the moment of writing. In all, each girl wrote six hundred words, for every one of which she was put to account. As a result of the cross-examinations, Binet classified the words as under :—

Words relating to	Marguerite.	Armande.
1. Objects actually present	120	26
2. Personal recollections	152	88
3. Abstract ideas	12	70
4. Products of imagination	0	23
Whilst of words that could not be explained	15	83

The differences are striking; Marguerite is characterized by the attention she gives to her physical environment, and by the strength of the impressions she gets in her daily experiences. She has very few abstract words, and very few words for which she cannot give a good account. It was also noteworthy that as the experiment proceeded, these characteristics became more and more marked—fewer abstract words and fewer merely verbal symbols having no accountable content. Armande, on the other hand, although a younger girl, is much more the slave of words. More than 25 per cent. of those which she writes stand for nothing in her mind. Her environment makes a much vaguer appeal, and her experiences do not therefore enter so directly into the play of mental activity. The words which represent personal recollections are as much concerned with things that happened a long time previously as with recent events; whereas in Marguerite's case it is recent experiences that very largely predominate.

The result of this single-word test is curiously confirmed by the preceding one. Indeed, we seem to be dealing with two entirely different intellectual types, and this idea is forced more and more clearly upon us as we follow M. Binet through his fascinating pages. He asked them on another occasion to describe a *sou*.

Marguerite produced this in five and a half minutes: "The coin which I am looking at is a sou. It is made of copper and is dirty through frequent use. The reverse of the coin represents an eagle with its wings outspread, as it belongs to the time of the Emperor Napoleon III. On the same side are the words *Empire Français: 5 centimes*. The obverse shows the head of the Emperor, and round it are these words: *Napoléon Empereur*, and beneath, the date when the coin was struck, but it is a good deal worn and I cannot read it. The coin is not very thick—perhaps two millimetres."

Armande took six minutes to write: "It is an old sou worn away by time; you can still see the head of Napoleon III. clearly on the dirty coin. Some flecks of *verdigris* embellish the words: *Napoléon III Empereur*, after which comes the date. On the other side, the letters are still more worn. You can scarcely make anything out of them. What a lot it would have to tell, this coin, if it could talk! Where does it come from? Through whose hands has it passed? We never think of these things when we cast our eyes upon the humble coin, we never think of enquiring about its history—of course not—the sight of a sou is so simple, so common. It passes by unnoticed, like so many other things which we are accustomed to see everywhere."

Marguerite, true to type, confines her description to the purely material—the facts as they present themselves to her senses. No

generalisations are awakened, but the impressions are accurately recorded. Armande, equally herself, passes rapidly from her immediate environment and writes sentimentally upon the small attention we bestow upon things that do us service when they happen to be so cheap and common as half-pence.

Binet extended his enquiries in this last direction beyond the two girls in question. He asked a number of people, about twenty in all, to describe a common object—he chose a cigarette. The twenty people included a number of school-boys, though the majority were beyond primary school age. On the basis of these papers he has suggested four distinct types of mind. These were as under. I give a very rough translation of a typical product of each class.

1. The purely descriptive type (*type descripteur*), which confines itself to the enumeration of details, without either emotion or imagination: "A cigarette: it is made of light brown tobacco rolled within a thin transparent paper, forming a long narrow cylinder. The tobacco is coming out of the paper cylinder slightly."

2. The observing type (*type observateur*), which endeavours to give a meaning to what it sees, to form judgment and make conjectures: "A cigarette which must have been in somebody's pocket without a case, for it seems to be a little crushed and the tobacco is coming out of the ends. I think it must be rather a strong one, to judge from the keen smell of the tobacco; it seems to be hand-rolled; I do not know the mark; it reminds me how dear French tobacco is on account of the monopoly, as is the case also with matches."

3. Then comes a type which delights in giving information (*type d'érudit*): "This is a cigarette, look how it is made: first there is an outside wrapper of thin paper, and inside there is tobacco. Tobacco is a commodity which grows almost everywhere to some extent in temperate and warm climates. The leaves of this shrub are gathered and after treatment, which may extend over four years, they are sold to the public in the form of a powder for snuffing, or in the form of fibres such as these we have in the cigarette. The leaves that are not cut are used to make cigars."

Lastly comes a type which refuses to be confined to the limits of pure description. Imagination predominates and frequently finds emotional expression. The whole attitude of mind is personal, and instead of describing what he sees, the writer begins at once to rhapsodise or to recount personal experiences: "A long cylindrical object. The tobacco is delicately packed in a wrapper of thin paper, white as snow; it looks soft and smooth. Smokers would find other things to say about it, more personal and perhaps more enthusiastic, but I do not

care for tobacco, and the sight of the cigarette awakens in me no other idea of pleasure than that which comes from watching the blue cloud of smoke rise in the air, spreading a pleasant perfume around."

Are Binet's types satisfactory? Can we divide mankind, and in particular children, into four such categories? The study of a good many similar exercises done by children in the primary schools convinces me that, interesting as is the classification suggested, it will not work in practice. The work of many children refuses altogether to be put into one or other of the four classes. The fact, of course, is that too many varying factors enter into the psychology of an exercise of this kind. The analysis must be carried much further. It will not do merely to add new classes to the four suggested, as Leclère,[1] for example, did when he repeated Binet's procedure. He found a section of his pupils—they were schoolgirls—in which the tendency to moralise was particularly noticeable. Indeed, he classified the results of a description of a lady's gold watch into seven groups, adding a moralising group to those suggested by his predecessor, and dividing the imaginative and emotional group into three—imaginative, emotional pure and simple (whatever that may mean), and an æsthetically inclined. He found, however, that the difficulties were not removed by adding to the number of types, and came to the startling conclusion that girls' minds were, on the whole, distinctly amorphous in character!

It is also possible that the young man who wrote rhapsodies upon a cigarette might have resorted to that sort of thing because he really knew nothing about it, and that if Binet had given him something to describe of which he knew a good deal, we might have found him sporting his knowledge and being differently classed in consequence. Leclère's pupils were also doubtless influenced by the fact that he was the teacher responsible for the lessons in morals, which were part of the regular programme of the school. The girls would be influenced by the ideas with which he and they generally busied themselves.

A much more elaborate attempt to work out types of mental activity in the higher intellectual operations has been published by a Russian (Nic. Wolodkewitsch) in the *Zeitschrift für Pädagogische Psychologie* (1906–7). To describe his method, which is based upon a careful analysis of the written descriptions of two pictures of an entirely different character—one represented a national tragedy, the other a popular idyll—would take longer than time permits. His aim was twofold: in the first place to find whether Binet's classification was adequate—he found it was not—and in the second place to find whether the various mental operations stood in any particular relation

[1] v. *L'Année psychologique*, vol. iv., 1898.

to each other. His conclusion is that whilst it is possible to distinguish two chief types—a descriptive type and an emotional, of which the former is interested in things, their objective qualities, their identification and their spatial relationships, and the latter gives itself up to enquiry and speculation about things, endeavouring to find out their less obvious connections—yet these fundamental differences enter into such varying relations with each other, even within the same group, that an almost endless list of subordinate groups would be necessary if all were to be satisfactorily included. If we go beyond these chief lines of demarcation, we must—according to this carefully conducted enquiry—take arbitrarily one or two clearly-marked characteristics in each group and classify accordingly. Thus, we may group those who show less than the average tendency to seize upon the objective characteristics of things into two divisions, according as this absent quality is combined with more or less than the average tendency towards emotional and imaginative writing. This same procedure will divide those who show a marked tendency (*i.e.*, above the average) to objective characterisation into those who are also emotionally inclined and those who are not.

I have said enough to show the complexity of this method of approach, so soon as we endeavour to carry it out in any detail. Binet's two girls show in themselves the typical differences of the two great classes into which it is probably not very difficult to assign most men. The one is objective, the other subjective, and though the differences are perhaps less clear in young children, I think my own family presents at least one well-marked example of each class.

I need hardly point out that the distinction has nothing to do with the question of relative capacity; that is a more complex question which cannot detain us here.

I come now to what seems a more promising field of investigation, for the reason that it attempts to simplify the problem by attacking the subject through the more elementary mind processes. Experimental psychology was quick to discover two fundamentally different types, even in so simple a test as that of a prescribed reaction to an instantaneous sensory stimulus. On the one hand there are those who fix their attention on the movement they are to make, they get everything ready as it were, to go off at the moment the signal is given; and on the other hand, there are those whose attention is directed to the stimulus. They execute the movement as soon as they have clearly received the message. Simple as the issue seems to be, it is the subject of controversy whether the types are due to native qualities or to training. Wundt holds the latter view, Meumann, Stern and others regard the difference as fundamental, and Meumann suggests the identification of the former

with the impulsive nature, and with the man of action as we know him in actual life; the latter as the observant and reflective type which reserves action until the grounds therefore are clear.

Reaction experiments, in so far as they are mere time records, hardly come directly into our subject. Let us turn then to the subject of Attention, which, however we may define it, stands in all our minds for a central fact in our mental life in respect of which many characteristic differences exist amongst individuals. Some are easily disturbed when they settle down to think their way through a difficulty or follow the intricacies of a complicated argument; others, on the contrary, find it no hardship to have to work in the midst of distracting influences. Again the relatively constant level of intensity with which one man attends is in very striking contrast to the ups and downs which are characteristic of another's way of working. This man can concentrate his attention most effectively for a very short time. He is soon tired, however, whilst his friend can go on for a long time at a high pitch before he feels fatigue, but when once he is tired he may take long to recover, and the other man is freshened up again after a very short rest. Finally, the differences which show themselves in the time occupied in getting to work at a new undertaking or after a holiday are familiar to all of us. All these are probably typical and fundamental differences. They are observable in children and in adults alike, and much ingenuity has been spent in the effort to find methods for their quantitative assessment. The subject is intimately connected with the hygiene of children's work, and every teacher will welcome the day when simple means of ascertaining the characteristics of children in this particular regard have been discovered. It is of course also intimately bound with the question of intellectual capacity—or effectiveness rather.

There is, however, another qualitative difference in the play of attention in different people which is not less important than these, and in which the types are perhaps indicative of fundamentally different methods of intellectual work. They come out distinctly in the use of an instrument known as a tachistoscope. This is a device for exposing a word, or a series of letters, or figures, to the eye for a very short time. The time of the exposure may be varied and measured, and of course the size of the printed type may be adapted to the ocular needs of the observer, who is required to say exactly what he has seen as a result of his effort to make out the word. The exposure must be short enough to prevent the possibility of reading until a series of exposures, one following directly after the other, have been made.

I give you some examples as they have occurred in some enquiries

I have been pursuing amongst boys and girls between twelve and fourteen years of age. Nearly all the children were much interested, and when I suggested that they were tired, the almost invariable answer was, "Oh no, sir, and I should like to try and find what that word is." I mention this to show that in many ways children are admirable subjects for psychological enquiry. They throw themselves whole-heartedly into the task in hand, and are not so easily bored as many adults. On the other hand, they tire more quickly, and one has to be carefully on the look-out for degenerate observations which point to weariness.

The words at the head of the columns below are the actual words exposed. Underneath are children's readings, the figure by the side being the number of the exposure in the series.

Recommendation.	Illustrate.	Intermediate.
6. Condemnation.	1. Saw a word with *s* in middle.	2. Netheredge.
10. Condemned.	2. — *t* next to *s*.	5. Nethergreen.
11. Commandment.	3. — *r* in front of *st*.	9. Nether square.
14. Commend.	7. — *ll* „ *st*.	13. „ „
18. Commandment.	8. — *i* „ *ll*.	18. Mether.
22. Recommend.	10. Illus.	19. Intermediate.
24. Recommendment.	11. Illustr.	
27. Recommend.	12. Illustra.	
29. Recommendation.	13. Illustrat.	
	14. Illustrate.	

Sufficient.	Sedimentary.	Candidate.
1. Could distinguish no letters.	4. Summit.	1. C——.
2. Only saw tops of letters.	5. Summary.	2. Cand——.
3. —ff—.	6. Elementary.	6. Canded——.
4. s—ffic—.	9. Education.	7. Candedate.
5. „	12. Elementary.	10. Ought to be *i* instead of *e* in middle.
6. S—ffient.	(This he stuck to, in spite of my telling him that he was wrong.)	
7. „		
8. Sufficient.		
9. (Now for first time reads whole word.)		

If you have followed the results as thus detailed, you cannot fail to note that they exemplify two entirely opposed methods of procedure. The children of the first type—and, so far as my experience leads me

to any justifiable conclusion, they are the most numerous—get whole impressions and interpret them. Their range of attention is relatively wide. When asked upon what point they are particularly endeavouring to fix their attention they do not know; they are trying to get at the whole word; they fix their eyes upon a definite spot, but their attention wanders through the whole of the word. A child of this type nearly always reads whole words, or nothing at all; he cannot distinguish between what he really sees and what he contributes himself to the optical impression. His own knowledge of words plays a much greater part in the act of perceiving than he is at all aware of. His attention is largely directed inwards. It is for him a problem of recognition chiefly. In this connection you will notice especially the readings under *Recommendation*, *Intermediate*, and *Sedimentary*. I should also explain that *Netheredge* and *Nethergreen* are well-known districts in Sheffield—the children lived for the most part in the latter district.

The second type of reader shows characteristics of an entirely opposite character. His attention is narrower in range, and it never leaves the physiological point of fixation very far.[1] Should he not have fixed his eyes quite at the right spot he can see little or nothing. He rarely guesses, or if he does add from within to that which he has got from without, he is well aware of it. The boy who read *sufficient* did not recognize the word, did not synthesize his results, until every separate letter had been made out. Notice, also, the series under *Illustrate* and *Candidate*, and compare them with the others.

Of course, the younger the child, the less skilful a reader he is, and the smaller his vocabulary, the more likely he is to guess a great deal. The difference between the two types of reader is not so clear in the child as in the grown-up, but that they exist amongst children of twelve and upwards seems highly probable.

The distinction between the two types is that of our old friends—objective and subjective, or perhaps *intuitive* and *analytic* would best apply. Have we in these distinctions a means of ascertaining fundamental differences in modes of ideation? Is the objective analytic procedure at the tachistoscope indicative of the scientific observer who makes objective truth his sole aim, whose work is always reliable and will stand the test of repetition? And, on the other hand, does the wide range of attention coupled with eagerness to interpret go with those amongst whom we rank our poets and philosophers on the one hand, and the inaccurate futilities of the average person who guesses at truth instead of patiently collecting or waiting for evidence that will

[1] v. Messmer, *Zur Psychologie des Lesens*, pp. 23 ff. Leipzig, 1904. Also Meumann, *Vorlesungen zur Einführung in die experimentelle Pädagogik*, vol. i., p. 508.

bear intelligent sifting. The two types are known to us in practical life, and they are probably familiar to the teacher or other student of children.

Within the broad differences which have been thus far laid down as constituting types of mental construction, as it were, there are others that relate to more specific mental action than is connoted by that omnibus word Attention. The modern psychologist speaks and writes of Memory types, Image types, Association types, and I know not what else. I shall for the present confine my remarks to the second of these, viz., Image types.

It was Mr. Galton, happily still amongst us, who first drew attention, in 1880, to the differences that exist between individuals in regard to their powers of visualisation. Whilst "many men and a yet larger number of women, and many boys and girls, declared that they habitually saw mental imagery, and that it was perfectly distinct to them and full of colour," there were others "who declared themselves entirely deficient in the power of seeing mental pictures." At the same time amongst these latter were men who "could give lifelike descriptions of what they have seen. . . . They can even become painters of the rank of Royal Academicians." [1]

The French School of Psychiatry under M. Charcot, at Salpetrière, by a closer study of their aphasic patients, came to the conclusion that the habitual "thought-stuff, if one may so call it, is visual" in some persons; in others "it is auditory, articulatory, or motor; in most, perhaps, it is pretty evenly mixed." [1] The case, however, of verbal imagery is quite a special one. There are people who are excellent visualisers, but whose skill in this respect is never applied to words. If they would recall the words of a play they have just heard or read, it is either the sound of the voices or the imagery of movement due to speech movements as recalled but entirely suppressed, on which they rely; much more rarely the visual image of the printed words may serve. Although the visualiser in relation to words is much rarer than the visualiser of the concrete experiences of daily life, he does exist; and as matters of language acquisition are of prime importance in the mental life of children, it is surely worth while to pursue the inquiry into the verbal imagery which individual children use by preference. A blind child must perforce be either of the auditory or of the motor type, or a mixture of the two, whilst Laura Bridgman and Ellen Key, on the other hand, must build up their verbal images upon foundations of touch and movement.

To illustrate the relation of this question to problems of education. The teacher's greatest bugbear is probably that of spelling, and most of

[1] v. James: Principles of Psychology, vol. ii., pp. 50–62.

the books on the practice of teaching will tell him that spelling is a matter for the eye—that a child who can read well can always spell accurately. Of course we know that this is not true. I have before me a paper written by a child of the seventh standard who reads with perfect ease, but he spells abominably, even when he is writing—as in this case—words of his own choice, from his own vocabulary. Reading is not a literal business, and in the ordinary case the eye does no more than compare the general look of the word as it has become familiar by reading with that which is produced when we write, and even for this its standard of trustworthiness will depend upon the power to visualise, which varies enormously. You will find some of your pupils "instinctively" relying on their analysis of the sound of the words when they come to write them down, an "instinct" strengthened or perhaps even started by analytic methods of teaching to read; but the accomplished speller has very little regard either for visual control or for sound analysis. The thing is in his fingers, so to speak, and the word is spelled in one nervous impulse which sets up the whole machinery for the production of the word. It is writing movements which spell, and motor imagery lies behind the adept in the art. I am, of course, speaking of the art of writing the ordinary language of speech. If you dictate to me a number of new technical terms, I must make another sort of appeal. The sound analysis will now be my only guide, unless I am in a position to correct that analysis by analogical reference to other words, being thereby prevented from writing *f* instead of *ph*. But whether the syllabic analysis will give rise to visual or motor images of the parts is an individual matter—or would have been if our "wholesale" methods of training had not interfered. In teaching to spell it would be of the greatest service if we knew in which direction our pupil was specially likely to learn—whether, that is to say, he were a visual, a motor, an auditory or a mixed type. It is usually a case of a preferred sense, and not of absolute reliance upon one. The various types of aphasia show what extraordinary power the mind has of making use of one set of images when another is, by reason of injury, suddenly cut off.[1]

In the actual machinery of thought we may thus distinguish five types:—

1. Those who think in suppressed speech—who actually feel the innervation of speech centres, and occasionally betray themselves by speaking aloud to themselves.

2. Those who think in voices which they can hear inside their heads, as it were—the auditory images predominate.

[1] v. Storring: *Mental Pathology and Normal Psychology* (translated by Loveday), chap. viii. (Sonnenschein.)

3. Those who represent the words of their thinking in script or printed character.

4. Those for whom the movements of handwriting are an almost necessary factor in thought activity.

5. The class of indifferents who use the various images derived from the different forms of speech production as occasion may require.

Each of these types is the result of inherited dispositions affected by the chance assistance or neglect of educational procedure. It is surely important in the interests of scientific educational method that we should pursue the subject and endeavour to determine the way in which these typical differences in the mental life of children may best be determined. The spelling and reading errors which are the despair of faithful teachers at times, even in otherwise satisfactory pupils, may be a guide, and incidentally I should like to suggest that the more systematic study of these deviations from the normal might well be encouraged with a view to throwing more light upon problems of teaching practice, just as the study of pathological cases has thrown so much light upon the psychology of normal people. The child whose preferred sense is hearing, will show the fact in his constant confusion of words which are similarly sounded but are spelled differently—heart and hart, reign and rain, roam and Rome, would and wood, moat and mote, taut and taught, might and mite, to quote a few examples which offer him special difficulty. He makes good shots at words, but often misses; on the other hand, the visually-gifted tends to confuse the words which are differently pronounced, though almost alike in their general appearance—cough, tough, lough; tear and tear, where and were, etc.

A popular spelling conundrum would hardly cause difficulty to the pronounced visual—

bac . . . . . kac . . . . . he.

The fact that so many fail to make out the word when orally spelled, with the pauses as indicated in the above division, suggests either that the power of visualising words is not usually very pronounced, or that it has been overlaid by much auditory and motor training.

Of systematic tests for ascertaining the nature of a child's verbal imagery, so many have been suggested and put into practice that it is not possible to do more than indicate one or two, along with a general warning that they all contain many pitfalls. It is almost impossible for the inexperienced to apply them satisfactorily at first. Considerable capacity for psychological analysis is necessary if we are to escape the many sources of error which creep in.

Kraepelin, Külpe, and others have adopted the simple method of asking children to write down lists of words as they came into their

minds.[1] From these lists they have drawn conclusions as to the mental imagery which enters into the "thought-stuff," to use James's expression, of the writers. It is certainly astonishing how different such lists are when they are analysed, but they can scarcely give information about the verbal image types, whatever may be the value to attach to the lists in respect of images of concrete non-verbal experiences.

Meumann suggests both direct and indirect methods of enquiry.[2] Thus, if we ask a child to read a series of letters arranged in this way—

b	*n*	*o*	*q*
v	*a*	*w*	*g*
h	*p*	*r*	*l*
d	*k*	*c*	*e*

beginning at the top line and reading from left to right, and after each reading let him try to say them in the same order, he will after a few repetitions be able to reproduce them accurately. When he has got them into his head, ask him to say the letters around the square, or to say them down the perpendicular lines, or to give you the diagonals. The child who relies either on the series of sounds, or on the series of muscle innervations, will fail altogether, or he will only succeed by saying each line through *sotto voce* until he comes to the place he wants ; but the one whose visual images play a dominating part will score. He will rise to the test and give the letters only a little less slowly than he could give them in the original order. I have found too that the visuals need more repetitions before they attain command of the series than the motor type. This may very likely be because they are not trained in school to rely upon their eyes, and because the non-native method demands more effort.

We may also test a child to find whether he learns a series of nonsense syllables, or letters, or figures most easily by saying them aloud to himself, or by listening to somebody else saying them. If he prefers to say them himself, or if he unconsciously repeats them when he is listening to another, it is the motor series which he finds easiest to fix, and so on.

The importance of some such enquiries I need not further touch upon. The modern language teacher, as well as the teacher of English and of all the subjects which make special demands upon visualisation shall we say, will not fail to see the bearings of it. But apart from the application of such knowledge, I am quite sure that it is on some such lines as are here indicated, that is to say, upon objective analytic enquiry, that the best work can be done in the field of Child-Study.

[1] cp. Binet's tests above.

[2] v. *Die Experimentelle Pädagogik*, vol. iv.

THE CHILD AND ITS SOCIAL LIFE. SOME SUGGESTIONS FOR READING.

By T. G. TIBBEY, B.A.

This subject, selected by the Council for consideration at next year's Conference, is sufficiently wide in import to suit all tastes, and the hope has been expressed that the Constituent Societies may, during next session, give attention to some of its phases. To this end it was thought that a list of books dealing with various aspects of the topic would prove useful. But its very extent makes the provision of a list short of a library catalogue that would prove entirely satisfactory somewhat difficult, and the following are only intended as suggestions as to where some of the material could be found. The Journal Committee would welcome from members any notes on other books they think would prove useful in this direction.

On the general question of the development of social instincts, the "Introduction to Social Psychology," by Wm. McDougall, will be found very valuable; this book indeed provides a good starting-point for consideration of some of the problems. But for more detailed views and facts upon which to base a conception of the development of the child's social life recourse must be had to isolated chapters in many books, and for this, those containing records of direct studies are the best, such as—

Barnes, Earl: [1] Studies in Education. Vols. I. and II.

Hall, Stanley: [1] Youth: Its Education, Regimen, and Hygiene. Shorter than, and for general reading preferable to, "Adolescence."

[1] Aspects of Child Life and Education.

All the above contain invaluable matter from the Child-Study standpoint.

To these may be added certain reports upon studies published in periodicals, as—

[1] Pedagogical Seminary:

Children's Ideals. Dec., 1901.
Social Pedagogy of Boyhood. Oct., 1900.
Imitation. Vol. IV., 1897, pp. 282–6.
Truancy. Vol. V., 1898, pp. 381–420.
And many other articles.

[1] Paidologist:

The Money Sense in Children. Vol. III., p. 12.
"If you found a shilling." Vol. III., p. 18.
Children's Attitude towards Rewards. Vol. III., p. 22.
Children's Saving and Spending. Vol. VI., p. 6.
In Vol. II., p. 110 there are also some "Notes on the Psychology of Shyness."

[1] To be found in Child-Study Library.

AMERICAN JOURNAL OF PSYCHOLOGY:
Some Aspects of the Early Sense of Self. Vol. IX., 1898, pp. 321-395.

Miss M. Louch, Colbury House, Totton, Hants, has many papers of questions drawn up on such subjects as Children's Ideas of Justice, Affection, Shyness, Curiosity, Suggestion, Imitation, etc., and would be pleased to lend these to secretaries. Other such sets of questions will be found both in PAIDOLOGIST and PEDAGOGICAL SEMINARY. The Edinburgh Society has also done some work in the child's interest in its surroundings.

Many books of educational importance contain either chapters upon, or many incidental references to, certain phases of the subject, such as—

BALDWIN, J. MARK. Mental Development in the Child and the Race.
Social and Ethical Interpretations in Mental Development.
CHAMBERLAIN, A. F. The Child: A Study in the Evolution of Man.
DEWEY, JOHN. The School and Society.
DRUMMOND, W. B. An Introduction to Child-Study.
GROSS, KARL. The Play of Man.
[1] KIDD, DUDLEY. Savage Childhood.
[1] KIRKPATRICK, E. A. Fundamentals of Child-Study.
LE BON, G. The Psychology of the Crowd.
[1] OPPENHEIM, N. The Development of the Child.
O'SHEA, M. V. Education as Adjustment.
SULLY, J. Studies of Childhood.
TARDE, G. The Laws of Imitation.
[1] TRACY, F. The Psychology of Childhood.

With their more particular reference to young children, Mrs. Louisa Hogan's "Study of a Child," Miss Millicent Shinn's[1] "Biography of a Baby," Bernard Pesey's "First Three Years of Childhood," and W. Preyer's "The Mind of the Child," are too well known to need more than mention.

Much has been written of late concerning the child as a social factor; the working of Medical Inspection of School Children, School Feeding, and the recent "Children's Act" all touch this side of the question, and Miss MacMillan's "Labour and Childhood" is a type of many books published lately under this head. In this connection mention may be made of the Reports of the Royal Commission on the Poor Law, which in Chap. 8, Vol. I. of the Majority Report, and in Chaps. III. and IV. of the Minority Report, deal with the problems of children under the Poor Law. These reports are now published for the Government by Wyman and Sons, Vol. I., 1*s.* 6*d.*, Vol. II., 9*d.*, Vol. III. (Minority Report), 1*s.* 9*d.*

[1] To be found in Child-Study Library.

NOTES.

Manchester Conference.—The annual Conference of the Child-Study Society, held this year, proved most successful. Space is not available in this Journal for a detailed description. We can only record that under the management of Professor Findlay and Miss Needham the programme was carried out without a hitch, and the meeting was unanimously voted a success. The University and the Child-Study committee in Manchester opened their doors with a hearty welcome. The Presidential address and four subsequent lectures furnished guidance in our work, and Dr. Kerr and Professor Green more especially showed us Child-Study in the doing and some of the results of their Study. The lectures will be published in this Journal. The Council meeting was well attended ; every Constituent Society, except Dundee, was directly represented ; we feel very grateful to the Right Hon. the Earl of Stamford (President of the London Society), who came at very short notice, to take the Chair at Friday morning's meeting, and afterwards attended the Council. The meeting of Local Secretaries deserves special mention ; it placed on record much earnest work being wisely carried out by able workers in several parts of England and Scotland. We cannot but feel that the Manchester Conference has "heartened us up" for more and better work in the coming session.

Tunbridge Wells Conference.—It is arranged that the Annual Conference shall be held at Tunbridge Wells in 1910. The subject of the Conference is to be "The Child and its Social Life." Mr. T. G. Tibbey has kindly contributed some suggestions for reading on this subject. We hope constituent societies will study topics which might be included under the above heading during the coming winter session. Prof. Karl Pearson has drawn up a schedule of questions on the social life of children, in connection with the lecture he has kindly consented to give. This schedule will be circulated as soon as printed. The titles of promised lectures will be published in the Journal when known.

Library.—We wish to draw the attention of members to the really valuable collection of books now available in our Library at the London School of Economics, Kingsway, W.C. A catalogue and the Library rules can be had on application to the Librarian.

International Congress of Psychology, Geneva, from August 3rd to 7th, 1909. If any member of our Child-Study Society is planning to attend this Congress, we should be glad if he or she would communicate with the General Secretaries, in order that the question of the representation of our Society at this Congress may be brought before the Child-Study Council.

Highgate Vacation Course.—A Summer School of the Psychology of the Child and of Methods of Learning in Junior Classes and Kindergartens will be held at The Home School, Bishopswood Road, Highgate, London, N., from August 2nd to 14th, 1909. In the mornings, Dr. Slaughter will lecture on the Psychology of the Child, Miss Findlay will lecture on Special Methods of Instruction, and will give Demonstration Classes to children about 10 years of age. In the afternoons and evenings there will be Lectures, practical work and excursions in connection with Nature Study, Arts and Crafts, and the Development of London.

M. L.

ABSTRACTS OF REPORTS OF THE SOCIETY, AND OF CONSTITUENT SOCIETIES.

(The Committee regret space does not allow of giving the Reports in full. The Lectures given before the Societies have already been announced in the Journal. All the Societies record the great interest taken in these, and their indebtedness to the Lecturers for their instructive discourses.)

The Child-Study Society.—The membership increased to 1439. A Board of Extension Lecturers has been formed to give addresses on the objects, work, and methods of the Society in centres where new constituent Societies may be formed, provided the travelling expenses are paid by the centre, and hospitality is offered to the lecturer. The balance in hand at the end of the year was £19 13*s.* 10½*d.*, of this £5 3*s.* 4*d.* was due to a profit on the *Paidologist* during the last two years of its existence. The Council met three times.—The Journal Committee submitted accounts in connection with vol. i. of CHILD-STUDY, showing a balance loss on the volume of £3 5*s.* 1*d.* No advertisements appeared in Part i., otherwise a balance profit would have resulted from the year's working. The receipts from advertisements amounted to £22 10*s.* Of the 1439 members of the Society only 746 subscribed to the Journal; 4 societies took 560 copies, the remaining 6 societies sharing 186 copies. As only about half the members took the Journal, it is urged that constituent societies should make a special effort to induce all their members to become subscribers, or, better still, to arrange for members' subscriptions to include the Journal. The thanks of the Society are due to all those who contributed articles and reviews.

Birmingham.—The membership continues to increase, the attendance at lectures has been larger than usual. Six ordinary meetings were held. The Society records its appreciation of the facilities accorded to them for holding their meetings in the University and for the assistance rendered to the Society by its President, Professor Hughes.

Dundee.—No report.

Cheltenham.—Miss Guinness was elected President for the year. The members numbered 140. Four meetings were held, all well attended.

Edinburgh.—The membership totals 89, and 57 copies of the Journal are taken. The accounts for the year show a credit balance of £2 12*s.* 7*d.* Seven lectures were held, the attendances varying from 30 to 300.

The practical work of the year was a questionnaire as to places of interest in the neighbourhood. "Why do people go there? What did you like best there?" A few of the points of interest which emerged from the answers were :—(1) A great difference between the children's own ideas and reasons for visiting the places and the reasons ascribed to others. A not uninteresting light was thrown on children's opinion of their elders. The reasons imputed showed a growing power of generalisation, the younger ones imputing their own motives to others, the older ones more general motives. The girls' range of interest and activities was much narrower than that of the boys—due, as was shown, largely to lack of opportunity. The large number of children who gave "shows" as an attraction seemed to point to the advisability of an attempt to regulate such things in places where children congregate.

Exeter.—The chief feature of the year was the reception of the Conference of the Society at Exeter. Four lectures were held. Visits were made to the Royal West of England Institution for the Deaf and Dumb and to the Western Counties Asylum for the Feeble-Minded. The membership numbers 100, all of whom receive CHILD-STUDY, which is included in the subscription. The accounts show a balance in hand of 19*s.* 2*d.*

Halifax.—The membership has increased, and keen interest is shown in the work of the Society by teachers, parents and local press. Seven meetings were held for members, and 23 sectional meetings in 12 Council schools attended by more than 2,000 parents. The sectional meetings were arranged in order to disseminate a knowledge of the scientific observations of child life and child development among the people. The Executive considers that the Society should aim at being more and more of practical use by going to the parents, and less and less of an academic interest only. The method adopted was: Head Teachers in Council schools in congested districts were interviewed and persuaded to form small sub-committees of members of their staffs and of parents of children. The Society financed all sectional meetings. Permission to use Council schools was granted by the Education Committee. The total cost of the twenty-three meetings, caretakers, printing, etc., was £8 12*s.* 6*d.* Each address or lecture was divided into two or three parts. At the end of ten or fifteen minutes, questions or suggestions were asked for of the parents, either verbally or in writing. It is expected this pioneer work will bring an increase in the membership.

London.—The Report covered a period of seventeen months. The membership totalled 303; all received copies of CHILD-STUDY, which is included in the subscription. Nineteen lectures and addresses were given, all largely attended. A visit was made to the Philanthropic Society's Farm School at Redhill. Delegates were appointed to a deputation of the National League for Physical Education and Improvement to the Board of Agriculture and to the Bread and Food Reform League. The accounts showed a credit balance in hand at the end of the year of £21 0*s.* 10*d.*

Liverpool.—Three lectures were held, and although the membership was good, the attendances have fallen off, due to the large number of meetings held by other societies.

Manchester.—The meetings during the session have been well attended and the number of members has increased. Six meetings were held.

The Society suffered a great loss last year through the death of Dr. Henry Ashby, who was one of the founders of the Child-Study Society in Manchester, and to whose keen sympathy, wise counsels, and practical guidance the success of the Society is very largely due.

West Kent.—The annual meeting was made of a social character, in order to create interest in the Society and obtain new members. The Mayor of Tunbridge Wells and the local Members of Parliament attended meetings of the Society. The membership numbers 56. The lectures have been well attended.

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Child-Study

The Journal of the Child-Study Society

PHYSIOLOGICAL VARIATIONS IN CHILDREN.

By JAMES KERR, M.A., M.D., D.P.H.

Delivered before the Manchester Conference, May 7, 1909.

It is not possible to deal with this subject, in a systematic and scientific way; the knowledge of the facts is yet wanting. Physiological variations in children, although matters of common knowledge, have as yet had little attention paid to them, and some attention is necessary for the scientific treatment of education or of children themselves.

Variation has technical meanings in connection with biology and problems of heredity, which need not at present concern us.

It is also used in reference to Types, which here again may be passed over, for instance the tall, fair type of individual, which anthropologists tell us is unsuited for city life, and the short, dark type whose numbers tend to increase. The children who are candidates for the open air schools, are in poor health, debilitated and often dwarfed, and yet the average height is brought fairly up by the preponderance of this fair, tall type.

The variation we have to deal with is the gradual changes of qualities about an average, which changes are compatible with good health. If any particular quality is assessed, the cases which differ much from the average represent variation as we will consider it. As an instance take *heights*.

The measurements of 1,347 children in Council Schools in London, and who were ten years old last birthday were taken, and set off on a diagram. Each millimetre and a half horizontally represents one centimetre height, and against each is set up a dotted column, each millimetre of which represents one child. The dotted figure gives the heights, and the height of which there were most are those nearest 131 centimetres, of which height there were ninety-nine, the numbers diminishing regularly above and below this height. If a curve like this

black line is regularly drawn to include as much of the dotted figure above as white below we get the frequency curve so well known, which shows how these numbers vary, and if there were a large enough number of children taken the dotted figure would approach nearer and nearer the form of this curve. We might further analyse these children as fair and dark, or in other ways, for instance, this curve represents all

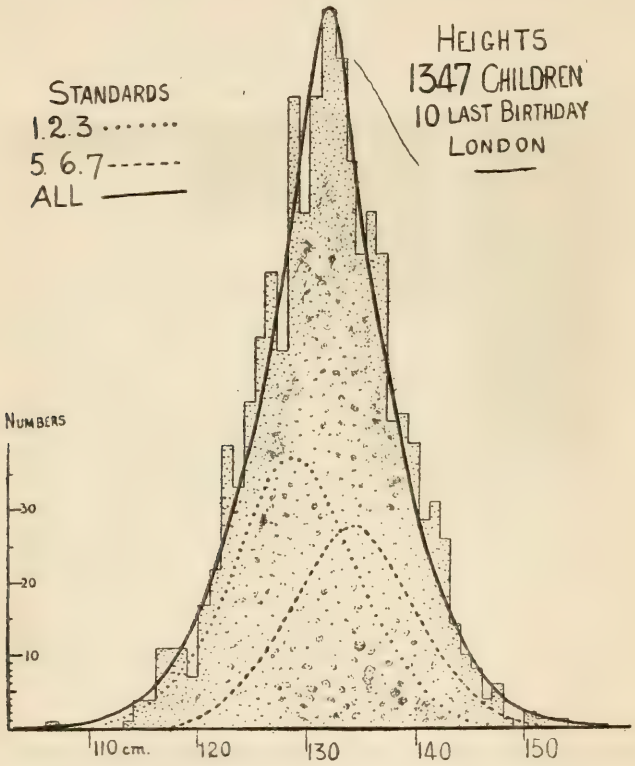

DIAGRAM I.—ACTUAL HEIGHTS OF 1,347 CHILDREN AGED 10 YEARS. THE THICK BLACK CURVE SHOWS THE THEORETICAL VARIATION. THE SMALLER CURVES THE CHILDREN OF THREE LOWEST AND THREE HIGHEST STANDARDS.

children aged ten last birthday, but if children were selected, all the lowest three standards being taken a similar smaller left-hand curve is obtained, but differently placed. If the same thing is done with the three highest standards, the second smaller right-hand curve is obtained. These two curves include all children except the fourth standard. And the lower standard children are smaller on an average than the higher standard, although they are all the same age.

Why are the smaller children in a lower standard than other children of the same age?

Here is an analysis of some 4,000 or 5,000 girls in the same London schools.

It is set out in four vertical columns, Standards III, IV, V and VI. The heights are marked in centimetres on the left-hand side. The tops of the lowest dotted divisions give the averages to which the girls aged

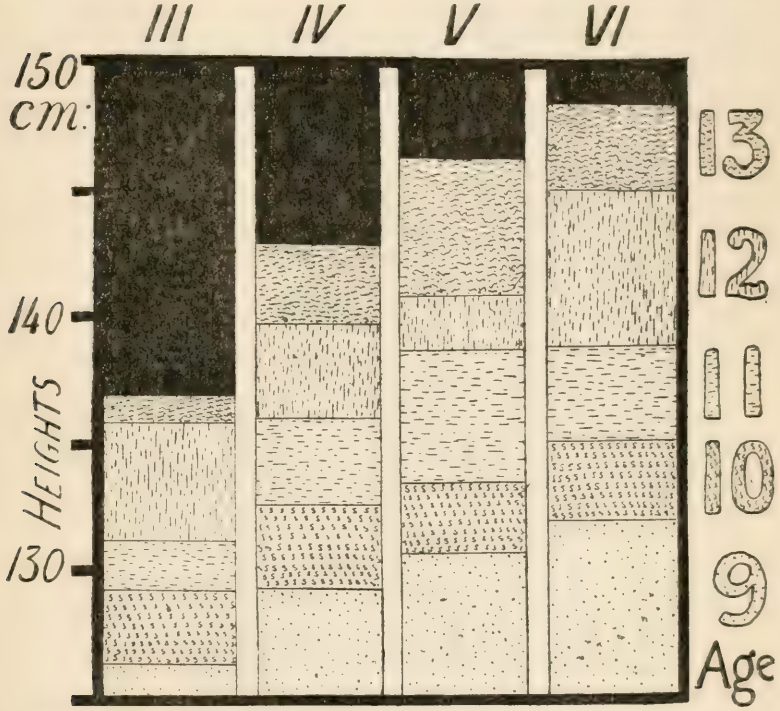

DIAGRAM II.—THE AVERAGE HEIGHTS OF DIFFERENT AGE GROUPS OF GIRLS IS REPRESENTED BY THE UPPER LINE OF EACH DIFFERENTLY TINTED AGE IN THE VARIOUS STANDARDS.

nine years old last birthday attain in each standard, the figured part, the level of the group aged ten last birthday, and the same story is shown by the level of the top of the division for each age as marked on the right-hand margin.

The result is always in this form; for America, Scotland, Germany, Denmark, Russia, the same kind of analysis comes out.

A further discussion of the causes would lead us too far astray, but the facts are of great sociological interest, and perhaps may also become

of political interest in the future. Poverty, hunger and dirt? The child of the one room. Alcoholism. These are sufficient explanations. In the lower ranks the widow's child, too, is generally better than the child with a father, for the family has no unemployed man to find in beer and tobacco.

The example of heights of children has been taken because this gives an actual concrete instance of variation, and can be actually measured.

This curve of variation applies also to other qualities, and can be termed the physiological variation.

Suppose in any way we could represent numerically the mental capacity of children, such a curve might be drawn to show their grouping as regards mental powers. The difficulties of such an assessment of mental qualities are notorious.

Many years ago, when trying to correlate the various conditions existing in children, not being able to trust my own judgment as to a child's mental status for statistical purposes, I trusted to the teachers to do the assessment. Marks being given to the children, 1 for an A1 child, 2 for a very good, 3 for average, 4 fair, and 5 for bad. A comparison of the markings, however, when set out in tabular analysis, showed such differences between schools and classes and teachers as an eight year old child in Standard III being returned as dull whilst a twelve years old one in Standard II is given as sharp, and one school being returned as 3 per cent. dull whilst another school returned 30 per cent. So that it is doubtful whether any ready and satisfactory mode of recording mental capacity exists.

However, if we could numerically assess mental capacity a curve would be found for physiological variation like this. It would be symmetrical. There would be as many sharp as dull, as many geniuses as mentally defectives.

Why is it not so? Behind the black curve is the shadowy dotted line. The curve of disease and its effects. It acts all in one way to degrade, it skews the curve over to the side of defect. Hence geniuses are rare and dunces are common, but the dunces are not all physiological, only a few are nature's handiwork. Drink and the devil have done for the rest. Causes that are to be prevented.

Physiological variation is, however, of enormous importance. Indeed it is owing to this plasticity, and possibility of variation from minute changes of environment, that education is possible.

The nervous system is the master structure of the body, all the other structures are merely appendages or apparatus, to supply its wants, or to carry out its commands.

By deductions from the facts of comparative anatomy and embryology the evolutionary history of the nervous system has been sketched out.

The mental life of an individual is made up of the functioning of his nerve cells. Conscious action is only a part of this mental life, perhaps a very small part, although to the individual it seems to be all.

Far away back in the chain of animal history lies the simple nervous control now exerted by the sympathetic nervous system. Later comes the quick machine-like response of the spinal reflex, possibly at one time a conscious accommodation, now unconscious, and from long

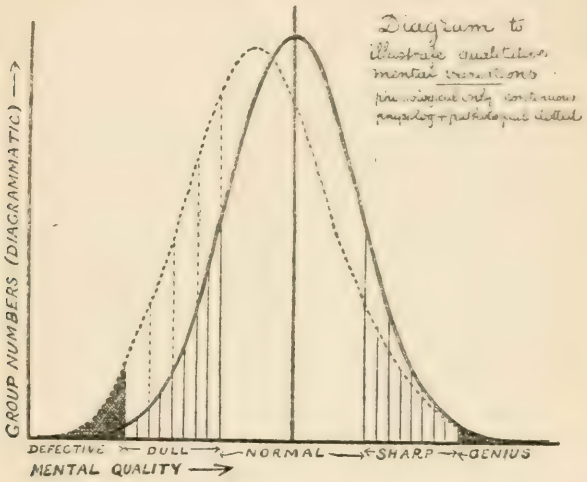

DIAGRAM III.—TO ILLUSTRATE THE PHYSIOLOGICAL VARIATION TO BE EXPECTED IN MENTAL CAPACITY, AND THE EFFECTS OF DISEASES.

ancestral use and inheritance almost unalterable by environment or education.

These make up the lowest level structures into which Hughlings Jackson schemes the nervous system; and it has been this plan of Hughlings Jackson which has been a guide to all workers from the education side.

Further on in the scale, later in animal history, there appears the grouping and control of these reflexes by centres placed in higher nervous masses, in the ganglia of the mid-brain, and the cortex of parts of its surface. These also include the simple representation of the sensations as vision, hearing and so forth, and possibly too the emotions in great part, and constitute the middle level of nervous action of

Jackson. They begin to function about or soon after birth, for the new-born baby is both deaf and blind. Then the various functions appear in a definite order not yet worked out, but of much educational interest.

It is probable that much of the vivid conscious life of the young child is made up of the functioning of these centres, which later become almost unconscious and automatic in their action.

Of the latest evolved functions on this level we may regard those which are most human as being most liable to variation, and the use of the muscles of articulation and of the hands in finger movements are almost peculiarly human, and these would be directions in which to expect variation.

When the highest nervous level of Jackson is reached it is in the regions where are stored the memories of combinations of sensory impressions and movements in their varied groupings. These memories are so richly stored that their anatomical basis can be demonstrated increasing in complexity with the complexity of function, as has been actually shown by Dr. Mott.

Probably in the early functioning of the cells of this highest level, which undergoes its development during school life, the actions are conscious and highly fatiguing, but this consciousness and liability to fatigue diminishes with practice as function become more perfect, until later even very high levels become semi-automatic and unconscious from habit, so that what "goes in at one ear goes out at the other" and children may even learn reading as a kind of reflex.

These memory groupings of sensation and acts are, however, but materials for reasoning and thinking. Reasoning and thinking consists in comparing and judging things; and the very highest regions of all, the regions of the intellect and the centres which direct attention, involve conscious action, and are also most liable, and the earliest to be affected by fatigue, environment, drugs or disease. They are also most liable to spontaneous or physiological variation.

The action of alcohol is very interesting. It is the most general and universal protoplasmic poison, and its effects are shewn beautifully on the nervous system. First the fine edge of judgment goes, then the control of the intellect, so that the lower centres run off by themselves, and a person may become loquacious, then as these centres are being overcome the emotions escape from control, the finer movements of tongue, lips, and fingers going, then coarser muscles, until finally all the voluntary muscles or rather the nerve cells controlling them are poisoned, and ultimately even the heart itself may be stilled from a large enough dose.

The study of the highest levels is not yet accomplished, all that can

be said is that it has been observed that nerve fibres before they become functionally established in activity have to acquire a fatty coating, the myeline sheath, and that there are areas of the brain surface, great silent areas, whose functions are accomplished screened behind the lower level cell actions, but whose work to judge from the time at which the nerves going to them become myelinated, does not begin till the child has started well on its way in life. These late developing areas must be connected with very high and specialized action, and must be the areas wherein is the greatest spontaneous evolutionary variation, but of all this as yet we can only confess our ignorance. The frontal or prefrontal regions have to do with the capacity for sustained attention, and the capacity for attention is the most delicate evidence of perfection in mental development. The sharpness of attention may be related to clearness of memory.

The possibility of good habits, right conduct and clear thinking is bound up with clear-cut sense impressions and definite and efficient motor acts.

Little can be done to train senses or to make muscles themselves more skilful. Education is mental training, that is training of nervous structures, but formerly the action of the brain or nervous system was spoken of as if it were a whole, instead of a complicated set of organs. Mental defect was treated as if all nervous structures were equally affected. This is the legal but unscientific way in which the late Royal Commission on the Feebleminded seems to have treated these matters.

There is a certain order and time followed in the appearance of nervous or mental action. This order requires investigation. Cases exist of prodigies of mental development at early ages, chiefly in the direction of specialized capacities, such as music. One recalls the extraordinary precocity of the child Mozart and his sister touring Europe at the age of six, of the infant Chopin playing in the night, and of many others down to the three year old musical prodigy of the present week. In the world of art Michael Angelo, Raphael and Rubens are the names of infant prodigies. There are others famous in literature, our own Macaulay. There is the strange little Christian Heinecker, of Lubeck, who spoke intelligently and volubly at ten months, acquired all kinds of scriptural and historical knowledge, including speaking fluently in Latin and French, and "on his deathbed displayed much firmness and resignation" at the age of five.

But not all precocious infants are destined to be prodigies, a large number of children who merely present irregularity in order of developing are even defective later, and this irregular development

is one of the stigmata of mental defect. It is not always a safe argument to bring out. The famous linguist, Pic de la Mirandole, was an infant prodigy, who was shown to a grand seigneur, as eminent as he was ignorant. He was satisfied that these clever children always grew up perfect imbeciles, whereupon the infant is said to have asked, "Were you so marvellously clever when you were young?"

Why some structures develop and others remain backward is unknown. The physiology of growth is somehow related to certain chemical substances. The effect of thyroidin on the cretinous child was one of the wonders of the past generation, and still survives in the yellow press. It almost seems as if some of the tubercular toxins were capable of stimulating some of the highest and most intellectual nervous functions.

The association by Broca, of Paris, nearly half a century ago of certain speech defects with disease of a small area on the left side of the brain was the beginning of definite knowledge of relations between structure and function.

Although Broca's conclusions have lately been called in question by some of his own countrymen, we still adhere to the experiences built up as a result of his observations.

In educational matters, hearing and vision are the great avenues of speech access to the mind. It is by investigating these systematically that definite evidence is obtained of physiological variations.

Highly intelligent signs would be the earliest means of communication, then the conventional human speech is attained, and with articulation progress becomes enormously accelerated. Hearing is the oldest method of speech reception. A later stage and more conventional and artificial is writing and printing, and finally the latest evolved of all, the most conventional and artificial, is our social morality. In these directions variation is to be expected, least with the oldest forms of speech spoken and heard, more frequent with speech in writing, whilst the altruist and habitual criminal are extremes illustrating the last and commonest variations.

The young criminal is frequently illiterate not because he is uneducated and therefore has become criminal but because the same undeveloped condition of high level nervous structures in virtue of which he is criminal also means that he could not learn.

So too in our Secondary Schools large numbers of boys waste years over the unreal and artificial classical learning, which they are taught by eye, a language applicable to conditions that can never be realized or recur.

Education for all, except a small percentage of school boys, should

deal with the objective realities of nature and not with subjective concepts so foreign to their period of development that the learning is largely a matter of memory and rote.

Speech, writing, and morality are the conventional things for which schools exist. "The promotion of godliness and good learning."

Many strange things were known about these matters in connection with disease, but when they were first looked at from the school doctor's standpoint there was very little known. Children who could not learn to read. Why? It is only some fourteen years since I hunted through all accessible literature for the subject of congenital word blindness and except a doubtful two and a half lines, in the book by Dr. Ashby, the great physician whose loss we all so much regret, except this there was no mention of the subject, and yet it is a key to a whole world of importance educationally. Some years later it was noticed in a book by Dr. Hinshelwood, of Glasgow, and I read a paper on the whole group of what may be called congenital aphasias at the Bradford Medical Society. Since then Dr. C. J. Thomas has worked to throw much light on the cases met in London and their educational bearings.

These cases generally afford every variety of physiological variation. Just as some strange instance of this, like cataracts, deafness, white tufts of hair, tricks or gestures, may run in a family so too do these cases of aphasia and so-called moral defect.

Since Broca's observations relating speech to brain defects, the study of disease, and above all experimental studies on animals, have shown that there are certain parts of the brain specialized for certain functions. In right-handed people speech is associated with certain parts on the left side of the brain, in left-handed the reverse.

The actual work of seeing is done by the occipital lobes, but the intellectual appreciation of things seen by other parts of the brain of which the word-seeing centre is one.

For the sake of simplicity let us consider first only the words that constitute written or printed speech.

The image of the word falls on the retina, and its representation is carried to the visual cortex in the occipital lobes. From these nervous impulses pass to the left angular gyrus, where the memories of visual words are stored. This may then set other centres into action, as by directing consciousness to the intellectual appreciation of the word and all it connotes, to the auditory memory of the word, or the actual production of the word by the speech centre or by writing.

There are two forms of word-blindness. That in which the centre for visual word memories is impaired, where no such memories can be used, so that the patient cannot read words, nor can he use visual word

memories for writing, but there need be no other sign of disease and most excellent vision. This is exclusively the form met with in children with marked physiological defect in this centre. They can neither read nor write, but they may do everything else. I have heard of a clever engineer making a good income doing all the complicated drawings for marine engines and getting other people to do the writing and lettering, as he was in this respect alone completely word and letter blind. In the other form of word-blindness the centre is not damaged but the path from the occipital lobes is cut off, and as the path from both sides must

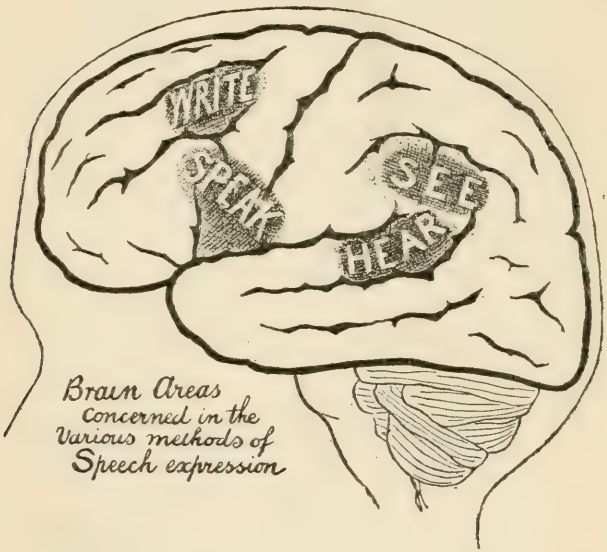

DIAGRAM IV.—TO ILLUSTRATE THE LOCALIZATION OF THE DIFFERENT WORD-MEMORIES IN THE CORTEX OF THE LEFT HALF OF THE BRAIN.

be cut off it happens that the only injury which can do this cuts off also the path from the left occipital lobes to the left halves of the retina, so these cases are known by having blindness over half of their fields of vision. As the stimulus of word images which reach the occipital lobe does not reach the visual word memory centre from the eye such a patient cannot copy writing or even read what he has written, although the centre being intact he can write spontaneously or to dictation, when the centre is set into action through the will spontaneously, or from stimulation by the ear.

Of the congenital kind, from the ordinary bad speller down to the word and even letter blind, there are all varieties of congenital defect of

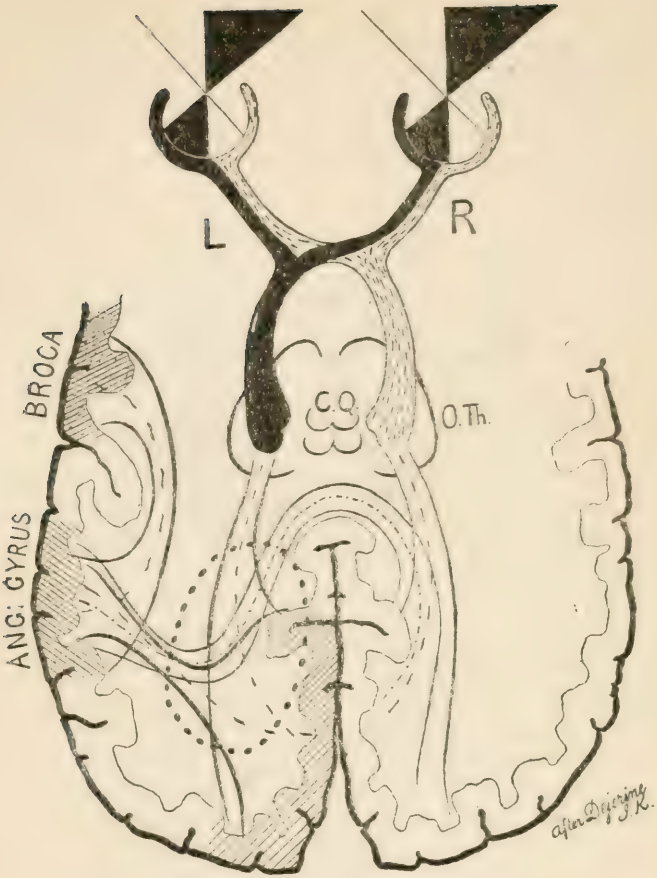

DIAGRAM V.—TO SHOW THE PATHS BY WHICH THE IMAGES OF WORDS ARE CONVEYED TO THE OCCIPITAL LOBES. THE PATHS FROM THE R. AND L. OCCIPITAL LOBES TO THE L. ANGULAR GYRUS WHERE VISUAL WORD MEMORIES ARE STORED, AND FROM THERE TO OTHER CENTRES, E.G., BROCA'S SPEECH CENTRE. THE DOTTED CIRCLE ILLUSTRATES THE LOCALITY OF DISEASE INTERFERING WITH WORDS SEEN AND ALSO RENDERING THE LEFT HALF OF EACH RETINA BLIND, BUT NOT INTERFERING WITH THE SPONTANEOUS ACTION OF THE VISUAL WORD MEMORY CENTRE, WHICH LAST CENTRE ALONE IS AFFECTED IN THE WORD-BLINDNESS DUE TO PHYSIOLOGICAL VARIATION.

this centre. Most of them possess the power of doing arithmetic so long as arabic numerals only are employed, but this is very deceptive because it is really another centre, the centre for eye muscle movements probably which has learned to recognize the numerals.

The condition is commonest in boys but is often associated with other defects, particularly the want of conformity to moral regularity and control shown by the street arab, gamin, wanderer, loafer or whatever we may call him, that so often improves by the motor training of the Industrial School fixing regular habits in his nervous system whilst still in its plastic period. The defect tends to run in families. Dr. Thomas estimates that about one in fifty children presents some degree of this condition, and well marked cases are quite common. Writing, and still more printing is a lately evolved, highly artificial and complex convention, and consequently the capacity for appreciating it is found liable to much variation.

Hearing and gesture are much older functions, in the sense of racial antiquity, and consequently variation is less likely, but even here it is found, up to complete absence of recognition of spoken words. The effects are much more profound however than in the case of word-blindness and fortunately very much rarer.

Just as there is a visual area, so there is an auditory area but not so well determined or defined. The intellectual centre for auditory word memories has been located at the posterior third of the first temporal convolution.

Hearing is nature's method of teaching speech. The child probably first recognized gestures but he soon builds up speech. Heard speech is appreciated and responded to in even complicated forms before intelligent speech is possible and whilst the motor speech centre is not yet controlled and the child merely babbles.

Dr. Thomas tells a story of his two little boys. The elder boy was taught each day to take off the date from an almanack hung in the hall. This was watched regularly by the youngest, and was known as "taking off the date." One day, when the younger was fourteen months old there were dates at table; hearing date mentioned the youngster got off his chair, toddled off to the almanack, and stood babbling and gazing at it. The condition evidently being that represented by an aural stimulus reaching the intellect, and the intellect dealing correctly with word memories already stored up, although the motor speech centre was as yet uncontrolled and merely produced unintelligible babble.

When speech comes it is by imitation. The repetition of words heard. This is a regular stage. In older children the repetition of words heard, of questions, is often a sign of good lower nervous centres,

and bad higher centres, that leads to suspicion of defective mental conditions.

If the auditory centre for words does not develop the child may hear perfectly well, but its whole psychology is profoundly affected. It is cut off from the very first possibility of acquiring the great bulk of transmitted human experience, and yet it may be quite intelligent. Before the cause of such cases was explained, it was generally stated that children who could hear but did not speak were imbecile. In Dr. Ireland's book written ten years ago there is described "a small class who may be styled idiotic aphasics, who remain obstinately mute, though it is clear they have more intelligence than other children who talk volubly. Sometimes, indeed, they have so much intelligence that people doubt whether they are imbecile at all." These are the children, many of whom now we expect to make into good citizens. They have one trivial defect which, if not detected, mars all.

These word-deaf cases learn by muscular movements, from vision and writing, they learn by being taught lip reading, by making letters and words with their hands, and so on. For instance, a boy who was word-blind and had a very poor hearing memory did not recognize a word shown him, nor could he recognize it when spelt out to him, but if allowed to write it, or even to make writing movements with his hand, he said the word at once. The first word-deaf case learned by imitating lip movements and then made them himself for a time to understand, thus using muscle word memories instead of aural word memories. Anything said to him he repeated noiselessly before he could understand it. This muscular memory of words is quite common; one sees people frequently in train or tram with their lips moving as they read the newspaper, the visual word centre being under developed; they probably have a slight degree of word-blindness and are helping it out with muscular word memories—a condition that will be increased by the phonic system which does not tend to clear-cut visual memories.

These aphasic cases may seem simple as related, but they are not easy to work out in practice, as often they are not as pure and uncomplicated as here related.

Here is an instance of a case taken from a London school report where training has followed careful diagnosis.

A girl aged eleven has been classed as a case of congenital word-deafness, but differs from typical cases in the extent to which commands are understood when heard, in spite of the influences impelling the child to rely upon sight. Dr. Thomas, who examined her in November, 1908, reports on the striking difference between heard speech, which is

merely repeated (echolalia) and seen speech (lip-reading) which is immediately answered rationally; for instance:—

Query: What is the time? (By ear only.)

Answer: What is the time? (Mumbled without intelligence.)

Query: What is the time? (Lip-read.)

Answer: (Immediately looking at the clock.) Three o'clock.

Query: What is your father doing? (Lip-read.)

Answer: Gone to work.

Query: What is your mother doing? (By ear only.)

Answer: What is your mother doing? (Echolalic.)

In this case the word deafness prevents the higher word centre being effective, and the child can only repeat words heard without comprehending their meaning, but she has now learned to understand by lip-reading. But on further examination many interesting points come out:—

(By ear)—*Q.* What is the number of *your* house?

A. What is the number of *my* house? (But no attempt to reply to the question.)

(By ear)—*Q.* How many brothers and sisters have *you*?

A. How many brothers and sisters have *I*? (But no sign of answering the question.)

(By eye)—*Q.* What is your sister's name?

A. Bertha.

The alteration in the pronouns marks an advance often noticed on mere echolalia. This substitution of the correct pronoun is especially taught in deaf schools. On further examination it was found that after she had repeated (echolalia) a question, if interrogated by lip-reading without the question being put again, she could answer it, thus—

(By ear)—*Q.* What is the number of *your* house?

A. What is the number of *my* house?

(By eye)—*Q.* Well! tell me.

A. Forty.

Again—

(By ear)—*Q.* How far away do *you* live?

How far away do *I* live?

Teacher (by eye)—*Q.* Well! tell him.

A. Not very far away.

The child was evidently using some subconscious action. The motor centre being roused by echolalia, by directing attention to this the meaning of the phrase is perceived. Telling the child not to repeat the question but to think of it, and answer—

(By ear)—*Q.* What is your brother's name?

A. What is my brother's name?—Willie.

(By ear)—*Q*. When is your birthday, Dorothy?

A. When is my birthday, Dorothy?—December thirtieth.

(By ear)—*Q*. When do you say your birthday was?

A. When do you say my birthday was?—December thirtieth.

(By ear)—*Q*. Do you like cake?

A. Do I like cake?—Yes.

The child was now given to understand that she was on no account to repeat the question, but to think carefully of what she heard. She found great difficulty in doing this, but after pondering some time a correct answer was obtained without the echolalic motor response being evoked aloud. It was evident that considerable restraint had to be exercised to prevent this, and every now and again, in spite of instructions, the echolalia recurs to words heard but never to words seen. In January, 1909, she answers ordinary speech correctly even with her back to the speaker, but if a whisper is used she at once reverts to the echolalic answers, showing that the auditory centre is still not completely controlled. In this girl's case no language was acquired until lip-reading was established, and the quickest and most direct route to her consciousness is by this centre. Questions heard are repeated by echolalia, but now she corrects her pronouns subconsciously. If special attention is directed to the motor response to questions heard understanding can be attained and a correct answer given. With great effort, heard phrases are understood without motor response being interposed, but not easily, often with error and often forcing the motor response in spite of attempted inhibition. Evidently the auditory centre is very weak, and it is difficult on any other hypothesis to explain this case.

Some time has been spent over the cases of children who have difficulties in connection with word symbols, whether seen or heard, spoken or felt, because we have been able to use them to clearly demonstrate how a slight variation in brain structure may make a great difference in the mental capacity. The mentally word-deaf have in uncomplicated cases been rescued from asylums, and will become useful citizens, indistinguishable to the ordinary person from any others.

Time must not be wasted in theorizing over almost metaphysical realms, but there is no doubt that in the great volume of functions whose nervous mechanisms are as yet practically unlocated and therefore unknown, in the region of the intellect, attention and self-control for instance, physiological variation is just as great as in the more tangible matters of word memories.

The children referred to occasionally as morally defective or in some cases as moral imbeciles are extreme cases from which there is a

constant gradation in increasing numbers up to the law abiding and social citizen.

The children who are word-blind or word-deaf are so in virtue of defects in the small areas of brain cortex which should store up the memories of word sounds or word images. The body of memories stored up, comprising the conventions which regulate our conduct in relation to society, make up morality, a body of memories probably not more complex than the body of written or spoken word symbols. These memories are a very late evolution. It is not so long since in any community the prevalent morality ordained death to the stranger, and the lateness of evolution of what we would call moral ideas is shown by the prevalence of much difference in all communities as to not only the finer shades, but even quite common principles. We cannot yet locate the machinery, but if this idea of morality is correct one would expect localization, somewhere in the great silent regions, which as yet are screened from direct observation by the action of lower centres.

Want of development of these regions will give rise to exactly the type of individual found with word defects. Incapable of appreciating one class of memory, incapable of education or improvement in that respect, and normal in all other ways, and a normal individual wanting in all moral behaviour except such as his emotions or appetites suggest will appear in some ways exceedingly clever.

Such are the children who come under observation occasionally as moral imbeciles—extremes, like our aphasics, extremes of physiological variation.

Most of these have hitherto passed through the schools unnoticed. They really are not provided for in any Education Acts, as they are quite capable of learning most things in school. Some may become millionaires, and many in later life will become a danger to the community.

They should be kept under control during school days, and registered by the finger print method so that the police will always know them in later life.

The treatment of such classes of children at present offers apparently insoluble difficulties, but probably after proper diagnosis considerable numbers could be given control and made amenable to social laws, by properly applied suggestions, even if necessary when in the hypnotic state. One knows nothing of the physiological mechanisms of hypnosis, only that it is possible at times to restore function apparently instantaneously to blind eyes, deaf ears, or paralysed limbs; and that there are cases of school children where such results are obtainable and well worth seeking.

It is again difficult to even form an estimate of the numbers seen who are defective, for that is the form which becomes evident, defective purely as a result of physiological variation. They are considerable. They should equal those who are above the average. It is evident, however, that an educational system which tries to cram all children into one curriculum is inefficient. Our present system of elementary education is without doubt being thrown away on 10 per cent. at least of the children. Twelve per cent. are three years behind the average age of their standards. For these children there should be in towns a system of schools suited to their capabilities. All men are free and equal in theory and according to the politicians, but nature makes one half inferior and at least 10 per cent. so very inferior that it is evident as soon as they cross their native threshold. These should be provided for according to their abilities, which we can state definitely are not abilities to attain even useful proficiency in the conventions of reading and writing—or obedience to the social conventions of their fellows. We must have opportunities for prolonged and careful study, schools or classes for observation.

Last year eight enormous volumes of Blue Books were published as the Report of the Royal Commission on the Feebleminded. All classes presenting abnormalities are dealt with, but there is not much about physiological variation. The Royal Commissioners propose to place all who are mentally defective under one category and one control. A new Authority called the Board of Control has been suggested, and every child, however young, who seems feebleminded, is to be catalogued with the undoubtedly imbecile or lunatic. It seems such a disastrous upheaval of good work already going on, and will entail such heartburnings and wretchedness in thousands of families that one stops to inquire not only whether it is necessary but whether it is even advantageous.

How are we to discriminate at tender ages between these cases? How is one to be certain that the child labelled feebleminded at six will not be labelled normal at eight. The percentage of error between these two ages is 50 per cent. on my own experience.

Where are the word-blind, the word-deaf, and lesser defects of particular kinds to go? It will be a hardship and injustice to catalogue them with idiots and lunatics.

There must always be a distinction between the growing and developing child, with its possibilities of education whilst yet in a plastic condition, and the grown adult, fixed and unalterable. Everything that concerns the child from birth till adult life during its plastic period of development is education. It may be the mere natural education

attained by the experience of living, or it may be the more formal training in conventional rules which every State now ordains for the convenience of its members, but wherever the State interferes from the time the child leaves its mother's lap till it becomes a citizen, that interference is to promote its evolution and development, whether moral or physical, and that is education. It will therefore be a retrograde step rather than an advance if the care of any class of child should be taken from the Education Authority and passed over to another, and it will mean that all the unnecessary conflict which so often goes on at present between Education and Poor Law Authorities might again be re-enacted if the views of the Royal Commission should become legalized in regard to these particular children.

We have glanced at the nature, prevalence and degree of physiological variation, taking height as a simple and universal measure, at some of the accompaniments of height variation in relation to education, at variation in relation to the avenues of knowledge, the memories of words which come through the ear gate and the eye gate. And even at variation as exemplified in the moral actions, coming through the ivory gates of the Soul itself, the routes to which, however, we cannot trace.

We have had mentioned the need for modification in a simpler direction of the ordinary educational system for a large proportion of the school population.

The suggestion of the Royal Commission, the hardships, and impracticability of classing all these cases with the wrecks for whom the Commissioners suggest legislation.

You have, however, not heard much that is new, and the subject has not been treated more thoroughly, because knowledge sufficient does not yet exist.

"THE VALUE OF HANDICRAFT AS A FACTOR IN MENTAL EVOLUTION."

(RESULTS OF AN EXPERIMENT.)

By T. H. HEWITT, F.R.G.S., Head-master Macclesfield Mill Street Higher Grade School, and Late Lecturer in 'School Methods' at the Macclesfield P.T. Centre.

Delivered before the Child-Study Society, London, March 18, 1909.

The correspondent of the *Manchester Guardian*, in reporting on the Education Section of the Dublin Meeting of the British Association last September, said—"The workers in education, with whom I spent most of the morning, were enjoying a unanimity of pessimism. Most of the speakers, from Sir Philip Magnus downwards, showed themselves dissatisfied with the present methods in the elementary schools, and all alike found the weak spot in the over-emphasis given to book-learning, and the merely formal elements of education, and the neglect of the commonly useful and practical. Sir Philip Magnus put it as strongly as possible when he said that thirty years of elementary education have failed to produce intelligent and capable citizens. This dissatisfied note ran through all the discussion. Reform must come from the stimulation of the commonplace qualities of observation, initiation and self-reliance."

After this vivid description of a partial failure, the question naturally arises: Wherein lies failure? To me there appear to be two answers to this question:

(1) It is a financial matter.

(2) Also a mental and physical one.

John Bull in the arrangements for his National System of Education craved for quick results. With his commercial instincts he wanted to see something for the money expended. Of course the results must be tabulated and printed in a big "Blue Book," that Parliament and the British public might calculate the value they were receiving for their money. It was as the child wanting a pretty garden at once, and instead of the patient tilling of the soil and the sowing and development of the seed, a few gorgeous flowers were cut, their stalks pushed into the ground, and at once you had a beautiful garden; but also very

much like Jonah's gourd. Could anything more insane have been invented? Mind to be measured by matter! John Bull, with his precious system of "payment by results," encouraged the children of the nation to be crammed with facts of a literary and mathematical kind, arranged in tables with prices affixed, similar to those one sees in a merchant's office, and this, up to recent times, was our national system of education—a system as up-to-date as the proverb-learning of the Chinese, and about as effectual in intellectual results.

The child was not considered. 'Tis true Matthew Arnold, Rooper, and a few others cried out for more humanity in our treatment and study of the child; but we were a commercial nation, and the people clamoured for a *quid pro quo* for their money, and in order to be able to produce educational balance-sheets, and secure a good financial bargain, we lost sight of the child and suffered a terrible educational loss.

No enthusiast dare investigate or experiment with safety; the spirit of research was not encouraged, and the beneficial results from these processes were lost through the awful cry, which one always met when new ideas were suggested, "How will it affect the grant?" All lovers of child-life longed that the Great Teacher might once more appear and "set a little child in their midst."

The second reason for failure was the lack of due recognition of dynamic or motor factors in our educational system. Of course, after so many years of the statical system we were difficult to move; yet if one only gives the slightest consideration to the natural conditions of a boy, say between five and fifteen years of age, one must come to the conclusion that our educational ideas have been based on wrong principles. We have carried far enough the old idea, "sit still and be good." Let us remember that reflection in a boy is not developed before the age of fifteen; the boy must be *doing*. The "Autocrat of the Breakfast Table" has evidently studied child nature, and asks us to observe how a boy "loves to run, swim, kick football, turn somersets, make faces, whistle, fish, tear his clothes, skate, fire crackers, cut his name on fences, crack nuts with his back teeth, and bite out the better half of another boy's apple with his front ones, call names, throw stones, knock off hats, set mouse-traps, whistle through his teeth, holler 'fire' on the slightest pretence, and run after soldiers."

If you put a boy into a room to be "good," and stop his singing or drawing or destroying or thumping the floor, he will not think, he falls asleep. Feré, in *Sensation et Mouvement*, maintains that the whole body "thinks" when the brain is in action, and this great idea we have missed.

The magnificent dynamic forces or factors stored up in a child have not been scientifically controlled and guided, and we have neglected the

achievement of a definite end in his actions; but forces and organizations are operating on the English public—the Child-Study Society, London, not the least—in bringing a great change over the dream.

It is impossible to be a pessimist with the knowledge of the change that has, and is even now, taking place. With the present enlightened policy of the Board of Education, under the lead of Sir R. L. Morant, a system of "block grants" has taken the place of "payment by results," a wiser devolution of power to local authorities obtains, and the challenge to teachers to be original and experimental marks the dawn of a saner educational policy.

In *The Suggestions for the Consideration of Teachers*, issued by the Board of Education—one of the finest pieces of work that they ever sent out—a request is made that some schools should be set apart as "experimental schools." Some time previous to this the experience of thirty years as the Headmaster and one's own studies as Lecturer in School Methods at the P.T. Centre were introducing new ideas to one's mind, and new methods, on a small scale, were being tested; but when the fuller freedom came, not only were our Managers willing, but the Macclesfield Education Authorities readily sanctioned a new scheme, and time tables and several experiments in school work were entered on. (Here I should like to publicly thank them, not only for this but for their enterprise in starting a large scheme of physical training, establishment of manual and cookery centres, and the provision of swimming-lessons for the school-children of the borough, and the establishment of organized games in our public parks.)

One of these experiments is the title of this paper, and I will explain its genesis. Some years ago a pamphlet written by Sir James Crichton-Browne, and published by the New York Education Company, came into my hands. It was, as it stated, ahead of the times, but the potentialities and possibilities shadowed forth in the work tended to fire the enthusiasm of any real educationist.

Let us examine (1) the premises of Sir James' proposition, and (2) the possibility of their realisation.

It stated in the work referred to that a purely literary education will be one-sided. In order to have a well-balanced and well-organised brain all the organs of the body that act and re-act with the brain should be well and evenly exercised. Sir James Crichton-Browne informs us that the brain is divided into three sections:—(1) The sensory and motor area; (2) The front portion which is not sensory and motor; and (3) A middle part, the fountain of muscular motion.

This middle portion has been the field of interesting investigation by Dr. Sherrington, M.A., F.R.S., and Holt, Professor of Physiology at

Liverpool University. Ferrier had previously performed similar experiments.

The experiments performed were as follows :—

The top of the skull of an Anthropoid ape was removed, electricity was applied to various localities in the middle part of the brain, and certain foretold results were obtained.

Professor Sherrington records these experiments in the Proceedings of the Royal Society (Vol. 69). He states that ten adult Anthropoid apes were experimented on. The method employed was unipolar faradisation, as it allowed a finer localisation.

We learn from the papers that the brain does not act as one whole, but that particular muscles are connected with particular centres. So clearly had the various movements been localised, that the movement the subject will make can be foretold before the application of the electric needle, *e.g.*, if the lower part of the middle or shaded portion be touched the jaw will close; the needle being slightly removed to the right, the jaw will open. Thus a correspondence with the limbs runs through all the middle portion of the brain.

The leg, body, arm, neck, face or mouth can be influenced. Neglect or injury to a muscle may impair the brain centre connected with it, while if the muscle is divided from the brain by the severing of the connecting nerve, the brain becomes dwarfed or atrophied in that part which before the accident was connected with the muscle. Working on similar lines, but as a psychologist and not as a physiologist, Professor O'Shea states that "we learn in the development of the individual the natural order is from motor to mental supremacy, and we should expect that education would best follow this order."

These findings in connection with Child-Study enable us to draw the following inferences :—

(1) That hand and footwork action is connected with the middle brain, the hand and brain acting and reacting on each other. (2) That mere intellectual treatment of the child will induce only a partial development of the brain. (3) That in the preparation of schemes for the education of young children the results of these experiments must enter fully into our plans, and (4) That the exercises formed by correlated subjects affecting this middle portion should operate at the proper age.

One of our ablest brain specialists has informed us "that the developments of the hand centres probably commence the first year of the child's age, and are most active between the fourth and fifteenth year," *i.e., the school age of the child in the primary school.* Should this period be neglected and the hand left untrained, and mere intellectual

treatment considered, "the hand becomes incapable of high manual efficiency," and no amount of subsequent exercise will produce the same effect as suitable exercises during the period of growth. To those connected with the training and development of our school children in the primary schools when our commercial competitors are training their people to the highest pitch there comes a national warning and a clarion cry for "efficiency," and the investigations of the physiologist and the psychologist cannot be set at naught with impunity. . . Our Board of Education now seem fully alive to this fact. The Prefatory Memorandum to the "Code" of 1908, written by Sir R. L. Morant, points to this influence. It breathes a new spirit, and if experienced and keen teachers can be encouraged by the officials of the Board of Education, and time given for the full fruition of any experiment, then a new system of *education* will be evolved, and instead of preparing boys for "fourth-rate clerks," the dignity of labour will appeal to them and resume its proper place. A love for the spirit of *creating*, instead of merely *copying* and *recording*, will be born; and the national demand for efficiency which is being made will meet with a satisfactory reply. Allow me to quote the portion of the Prefatory Memo. that bears on my subject—Handicraft.

On pp. V. and VI. par. 3 of the New Code are these words :—

In the case of Handicraft it is specially important that its general effect on the intelligence and character of the scholars should be emphasised, and that it should be so treated as to "teach the children *to think* clearly, and to work accurately through the discipline of the hand and eye, and to form habits of *industrious*, *careful and accurate work*.

Handicraft ought, therefore, wherever it is practicable, to be included in the ordinary curriculum of the school for older boys, and instruction in it should keep step, and be closely correlated, with their other instruction and be continued throughout the whole year. The Board have under consideration the question of developing all forms of Manual Instruction in the lower classes of Public Elementary Schools and in particular of *filling up the gap between the Infant School*, in which Manual Instruction is an essential part of the curriculum, and the *Upper Classes*, to which the teaching of Handicraft is at present confined.

A further encouragement and incentive to push this subject is noted on p. 5, Art. 4, sub.-sec. (5) New Code.

"In some towns the Board will be prepared to approve a syllabus in which the teaching of the subjects named in Art. 2 (*i.e.*, the ordinary subjects in the school curriculum) is of a less advanced character than usual, provided that the time so saved is devoted to hand and eye

training, including, in children over seven years of age, suitable and practical application of such training."

The fear of "loss of grant," "of no time," or "already too many subjects" is obviated. As the Memo. hints at, the kindred subjects can be so correlated as to be mutually helpful.

In the experiment now in operation for the third year we have a good illustration of the fact. The curriculum is arranged in three divisions :—

I. The Spiritual and Ethical. II. The Literary and Mathematical. III. The Handicraft and Physical Culture, with correlated subjects. The time per week at one's disposal is about 28 hours, which is roughly apportioned amongst the three divisions as follows :—

I. Religious work, 4 hours.
II. Literary and Mathematical, etc., 16 hours.
III. Handicraft, etc., 8 hours.

The Subjects embraced by each division are as follows :—

A = 4 hours.	**B = 16 hours.**	**C = 8 hours.**
Spiritual and Ethical.	*Literary and Mathematical.*	*Handicraft and correlated subjects.*
Scripture.	English.	Handicraft.
Music.	Arithmetic.	Drawing (Freehand Model and Geometry.)
Poetry.	Algebra.	Brushwork.
	Geography.	Cookery with Household Management.
	History.	Drill.
	Science.	Voice Production.
		Swimming.
		Recreation and Organized Games.

The general plan is :—

A. Soul culture. B. Mind culture. C. Brain and Muscle culture.

The common objection to an overcrowded curriculum will be referred to at a later period of this paper, but here it might be stated that all the subjects have been thoroughly correlated to each other, and tables showing the same have been entered in the "Scheme of Instruction."

To give one illustration we will take Division "B." Formerly we allotted eight and a half hours to arithmetic; we now give four and a half hours, for the simple reason that formerly the arithmetical demand

for sums embracing millions and hundreds of millions, mathematical puzzles, together with a demand for deadly accuracy, necessitated long hours of drill, often resulting in a mechanical accuracy in obtaining four sums correct, at the expense of the child's intellectuality. Put the question to yourself, and try to realize, what is a million? and yet children of eight to ten years of age were asked to work these inane exercises. It was attempted, but at a great cost. Now Handicraft is correlated with arithmetic. On the school journey, the tape measure, the chain and the yard or metric stick are taken out. Pieces of land are plotted out and measured; big stones and heaps of earth are also "measured up," flagging and setts on the road are also noticed; the results are worked out at school and probable prices found. Distances are judged and afterwards tested with the tape. Diagrams and graphs illustrating and solving rules and problems are drawn. The tables are first *made* by weights and measures, and sand or beans; and measurements in the playground. These results are afterwards committed to memory. Nothing is set in arithmetic without concrete things and diagrams being used, and every problem must be within the child's mental conceptions. A just correlation with the brain and hand is thus maintained. This leads us to the most interesting part of the experiment, namely :—

Division "C," Handicraft, etc.

All experiments have two ideas—(1) What is aimed at, and (2) "Did you get there?" as Professor Findlay puts it.

Our aim was :—

1. To work more in things and less in words, to be more practical and less theoretical.

2. To fill up the gap between the Kindergarten—where bright, intelligent keenness is always observable—and the higher classes.

3. To obtain a well-balanced development of the brain and muscles, and the production of the "all-round man."

4. To cultivate self-reliance in learning and the power of initiation in the children.

The means we have adopted "to get there" are varied, in order to keep the interest of the child, and touch its physical and mental culture at all points.

Our scheme of Handicraft is organized so that one idea will work throughout the whole school—which has been divided into :—

I. The Kindergarten. II. The Middle School. III. The Upper School.

(*a*) We commence the Handicraft in the "Kindergarten" with paper-cutting, fraying, stick-laying, clay-modelling, work in the sand

tray, bead and shell work, crayon and brush work in fruit, flowers and common objects. The painting and drawing is done in the mass and afterwards modelled in clay.

(*b*) The work is continued through the "Middle School," advancing the various branches class by class. The modelling must be from actual things drawn and painted first, created in clay next. Clay is chosen partly because of the cost, but chiefly for its plasticity. A child is better able to express its impressions by its fingers through clay as a medium than through material such as cardboard. It is also a better medium of expression in Geographical, Historical and scientific subjects.

(*c*) In the "Upper School" the subjects are more general and advanced than those in the lower schools, and woodwork with edged tools is added to the clay work. The drawing that precedes the creative work is in plan and elevation to scale, and always in light and shade. The work is carried on in a properly equipped workshop with a specially qualified teacher. The science lessons suggest copies for models for clay and brushwork in colours, such as shells, fishes, insects, buds and leaves of trees. These often form and suggest units which are made and painted into designs.

The children sometimes work in co-operation at one piece, such as making a cluster of bananas, or an historical place, as the walls of old Chester, or some building, as an old castle. Plaster work has been introduced to enable some of the ideas expressed in clay being made more permanent. Frequently instruction is given in cardboard work in school, and the cutting out and fixing done at home. The formation of a love for home hobbies is not to be despised. The special work for the girls is referred to later.

The scheme is worked on the concentric principle. The predominant idea is to find work of sufficient difficulty and according to age, and to allow plenty of scope for the expression of their ideas. Brushwork with two or more colours, and the principles of perspective, in model, and proportion in geometry, are all correlated. Objects of beauty, as Moths and Butterflies, are painted from nature; and then we attempt to show the connection of Art applied to Handicraft by allowing the boys to draw and cut out stencil designs on cardboard, afterwards working them on silk and other material; but perhaps the most interesting part of the scheme, at any rate to me, is the correlation of Handicraft to the Geography and History lessons. The School journeys furnish the first impressions and an expression in clay is made by making a model of the same. In addition to the sketch made by the children, contour lines from the Ordnance Survey Maps are given to the advanced pupils, then the roads, valleys, streams are located, drawn and

afterwards modelled, the heights and valleys together with the undulations of the land all keeping their proper proportions. Two scales are used, horizontal and vertical.

Other exercises are obtained by giving the children orographical maps. The tracings of the countries and their ports are distributed, and the child builds up, in relief, all the physical features of the country, thus making, and learning in the making.

The spirit of research and initiation is encouraged ; for the foundation knowledge is obtained from things as well as from books.

One is greatly indebted to Professor Sadler for the results obtained in the correlation of History and Handicraft as recorded in "The School Record of the Demonstration Scheme," by Professor Findlay. The models of "Cave Dwellings," and "Pit Dwellers in Cheshire," the ancient implements in the School Museum, the models of neighbouring Roman Camps, a large model of the walls and fortifications of the City of Chester, under the Romans, and during the Civil Wars, the reason for the different sizes shown ; and all local historical objects that appeal to the children's imagination and executive power are worked out. A model appeals to one more than a picture. Science is correlated in the same way. Besides working in clay the children are encouraged to make apparatus at home to illustrate their lessons. For instance, a ball and socket joint was made with wood, strong elastic and small tacks, illustrated the working of the cartilage and attachments. The modelling tools used in the school were made by the children at home, after receiving instruction at school.

The girls, in addition to working in clay, are trained to use their hands in domestic work in cooking and making up dishes.

Instead of the old system of giving a garment to a girl "fixed" and ready for stitching, the girl of the upper classes must draw to scale the pattern of a garment, measuring, and decreasing or increasing the size, and making her own calculations with fractions, etc. The pattern is then cut out by the child, placed over material and cut out in the material, these are fitted on and made into garments, such as blouses, etc. ; thus Arithmetic, Drawing, and Handicraft have all been correlated in the making of the garment.

Physical Drill, Voice Production, Swimming (Boys and Girls), Organized Games, and up to recent times, Rifle Shooting,[1] these are all

[1] It is a great pity that rifle-shooting has been forbidden the primary schools. One would record—not as a "Jingo," whatever that may mean, but as an experienced educationist, anxious as to the perfect development of the child—one's experience and investigation. To be a good shot the boy develops perfect control and suppression of self : must keep fit, long and short vision, strong will power, nearly all the muscles

treated in correlation with the purposes of Handicraft, *i.e.*, the *Mind* and *Will* must work in harmony with the limbs. No music is allowed for the drills, but judging their own time, each works as a unit as well as in a body; the unit is kept on "will" work by sudden changes in the orders. Smartness, alertness, and dexterity are the soul of our aim: or stated in another form—the whole purpose of Handicraft and its courses is to produce children not crammed with facts, but *trained* to use mind and hand, and to prepare them for the world, and for that time, which will be so sorely felt, when our system of apprenticeship decays. And now having stated our aims, and the means to attain them, let us briefly sum up the results of the experiment and judge if we have realized our ideals.

1. We find the literary and mathematical subjects have not suffered but rather gained through the reaction on them by Handicraft and its correlated subjects.

2. The creative forces, developed by handicraft, cultivate greater originality, balance the mind more completely, take the children out of a groove and give a greater power of initiation, enabling them to tackle problems of all kinds with greater success.

3. The experiment has not injured the "all-round progress" of the children; for compared with other children they are superior to many, and equal to the best, as the lists of scholarships and other honours gained in open competition prove.

4. With careful watching and a proper division of time, and an enthusiastic staff—but they must be enthusiastic and loyal—and with ordinary-sized classes, Handicraft, and "its cousins," evolve practical intelligence and help to send out a boy at fourteen or fifteen years of age well balanced in brain and muscle, or in other words, they will form the foundation of a "good-all-round-man."

5. That "*Form*" knowledge is added to "*word*" knowledge, to attain which the attention has developed into concentration and both have been tested and strengthened.

6. At a time of national physical degeneration this subject is indispensable, for it not only trains both the muscles and the senses, especially sight and touch, but it counteracts the strain on the nervous

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are called into play, and the whole of the middle portion of the brain must benefit. The moral and patriotic side one must leave. The exercises were given by and under the supervision of an expert and the parental consent obtained. Two of my finest shots are to-day working in honourable positions with hand and brain. One has become a trained and certificated teacher in Handicraft, the other is at the hostel of G. F. Watts, R.A., preparing for Artistic Handicraft. The results are given without comment.

system through too much book-work. One finds the children more self-reliant, and in handling things less awkward.

7. That it co-operates with the ethical teaching of the school by giving a love of order to the children and checking the spirit of vandalism and hooliganism. A child who has created a piece of artistic work will, through the love and admiration for its own work, be deterred from destroying the work of others.

8. The poorly-developed children that seem to have no heart for purely literary work enter with zeal into handicraft, and the keen intelligent look that returns is most encouraging to the teacher.

In conclusion, lest the above findings should seem to be biased in favour of one's ideals, I will quote a portion of the report of Herbert Ward, Esq., H.M.I.—who had been assisted by several colleagues, experts in their own field of work—to show how the official findings compare with my own :—

"The Time-table is full, but there is no sign in slipshod work that it is overcrowded. The children are bright and responsive and they co-operate intelligently with the teachers. They are being taught self-reliance in learning for themselves."

"It is hoped the experiment, the main object of which is not to extend the number of subjects that may be taught, but, by treating them from a fresh point of view, to reap a fuller benefit from the teaching, will meet with sympathy and encouragement from the Local Education Authority."

NOTES.

Tunbridge Wells Conference.—In connection with the lecture which Professor Karl Pearson has promised to give on the Social Environment of Children, he has drawn up and printed a schedule of questions, on the answers to which he will base his lecture, provided the returns are sufficient. The Hon. Secretary of each constituent Society is in possession of copies which in some cases will be sent out with the current number of the Journal. The schedules contain questions such as can be answered by people of ordinary powers without special scientific training ; we therefore appeal to each individual member to take one of these papers and fill it up as fully and as carefully as possible. The slight trouble involved in so doing will give our members an opportunity of showing that they take a genuine interest in the objects of our Society, and are ready to personally assist in work which will increase our knowledge of child-nature.

Brisbane.—We have received the prospectus of a Child-Study Association in Brisbane, the objects and methods of which appear to be very similar to our own. We cordially wish it success. The Hon. Secretary, Miss Liggins, Gladstone Park, Bowen Terrace, Brisbane, is resigning, owing to stress of work ; she is to be succeeded by Mr. Hulsen.

International Congress on School Hygiene.—The date of the Third Congress to be held in Paris next year, has been altered to August 2nd–7th.

M. L.

LECTURES TO BE DELIVERED BEFORE CONSTITUENT SOCIETIES FROM OCTOBER TO JANUARY, 1910.

Birmingham.

Oct. 11, 12, 13.—Story Telling. Miss M. L. Shedlock.
Nov. 9.—Medical Inspection in Schools. Dr. Auden and Dr. Priestley.
Dec. 14.—The Use of Dramatisation in the Teaching of Young Children. Miss L. L. Plaisted.

Cheltenham.

Oct. 5.—The New Experiment in Education. C. H. King.
Dec. 1.—Fact and Fancy in Child-Study. Prof. J. A. Green.

Dundee.

The work of the Society has been reorganized. It is hoped to arrange for at least four Lectures, and that three of these will be given by Miss Margaret McMillan, Mrs. Leslie Mackenzie, and Dr. W. B. Drummond in November, December, and January. The Hon. Secretary of theSociety is now Robert Johnson, Hillview, 10, Clepington Road, Dundee.

Exeter.

Arrangements are being made for two lectures on Child-Study subjects, and a special lecture, to be given at one of the large schools, appealing to parents to join in the work of the Society.

Reading circles will discuss the special subject for the forthcoming conference.

Visits will be made to the West of England Institution for the Feeble Minded, and the Royal Institution for the Deaf and the Blind.

London.

Oct. 7.—Reception of members by the President, the Right Hon. the Earl of Stamford, and short addresses on Child-Study. Miss Alice Ravenhill, C. W. Kimmins, D.Sc., M.A., G. E. Shuttleworth, B.A., M.D. (Tea, coffee and light refreshments will be served during the evening.)
Oct. 14.—The Influence of Child-Study upon Religious Education. Rev. W. Hume Campbell, M.A.
Oct. 28.—Care of Children under the Poor Law. Right Hon. Sir John Gorst, M.P.
Nov. 18.—The Child Criminal. W. C. Sullivan, M.D.
Nov. 25.—Children's Care Committees. Miss M. Frere and Miss C. Grant.
Dec. 9.—Mental Fatigue. A. R. Abelson, D.-ès-L.

Halifax.

Sept. 29.—The Parent, the Teacher, and the School. Prof. J. J. Findlay, M.A.
Oct. 13.—Fact and Fancy in Child-Study. Prof. J. A. Green, M.A.
Oct. 27.—Little Mothers at School. Dr. Dora Mann, Halifax.
Nov. 10 and Dec. 8.—A Visit to "Les Écoles Maternelles" of Paris. Rev. A. B. Bater, M.A.
Nov. 11.—The Slum Child's Toys. Miss Clara Grant.
Nov. 24.—Froebelian Kindergarten. Miss Margaret Wroe.
Jan. 19.—Physical Imperfections as Hindrances to Social Development. Dr. Mumford.

West Kent.

Effort is being specially directed to the working up of local interest in the Conference for next year. There will be three public meetings during the winter; the first will be in—

Nov.—Parental Responsibility. F. Lawson Dodd, M.R.C.S.

REVIEWS.

The Pedagogical Seminary. December, 1908, March, 1909.

In the December issue there is an article entitled, "Some Neurological and Psychological Aspects of Shock," by Dr. Willis L. Gard. The writer examines the different bodily and mental conditions to which the word "shock" is applied, their antecedents and results. Various illustrative types of the latter are quoted, e.g., neurasthenia, hysteria, insanity, loss of memory, permanent terrors, and change in character. Shock as an element in conversion, in punishment, and in the formation of mob-mind, are other points discussed. A bibliography is added. Another important article in this number is, "A Genetic Study of Rivalry," by George Ordahl. The writer affirms rivalry to be the outcome of the universal craving for activity, acted upon by the struggle for food, for mates, and for leadership. Mutual aid is a counteracting element to the impulse to rivalry, and is, the writer contends, a real and effective element both in animal and human life. The article includes a historical survey of methods of education which have made notable use of rivalry, including certain present-day pedagogical practices. An index to vol. xv. is given in this issue. The number for March has an article by Louise Ellison on "The Acquisition of Technical Skill." It summarizes a series of investigations or conclusions by different people into the processes that contribute to facility of acquisition both verbal and motor. The value of repetition, especially repetition divided by short intervals, is brought out in most of the studies. Evidence is given that in the acquisition of motor skill, intervals of no practice may represent periods of progress, while periods of practice, where there is no advance made, may indicate suspension of effort, due to lack of interest which could be aroused anew by fresh methods. There are two articles on the language of young children in this issue. One gives the vocabulary of a three-year-old boy, an only child; while the other is a series of over a thousand words and their meanings, given in response to the question, "What does ——— mean?" by the four-year-old daughter of Mr. and Mrs. A. F. Chamberlain. Some of these definitions contain graphic descriptions or word-pictures resembling those of certain primitive peoples; many consist simply of pointing out the object or acting out the meaning wholly or in part; others give the use of the object, or say what is done with it.

An article by L. Estelle Appleton, one of the American teachers who have lately visited our shores, records impressions of her experiences in England. S. Y.

The Early Education of Children. By LAURA L. PLAISTED. (4*s.* 6*d.* Oxford University Press.)

This book is mainly the outcome of personal experience in the writer's school. She disclaims any pretension to originality or novelty, and seeks merely to give the results of various ideas relating to curricula and methods of instruction that, in her experience, have stood the test of time and trial. Those who are engaged in teaching or organizing an infant school or kindergarten will find opportunities of comparison with their own experience and also helpful suggestions for modes of procedure that, although not absolutely novel, may be unfamiliar to some readers. S. Y.

Archives de Psychologie. July, 1908. WILLIAMS AND NORGATE. (3 fr. 50.)

In this issue M. J. Varendonck gives an interesting study on "Children's Ideals." To the question made familiar to us by Professor Earl Barnes, "What person of whom you have heard or read would you like to resemble?" answers were received from 745 pupils of communal schools in Ghent and Ledeberg. Unfortunately for the purpose of a critical comprehension of the results, we are not told how many pupils there were of either sex, or of the different ages, but we are told that there were not sufficient papers from pupils aged seven, fourteen or sixteen years to allow of

generalisation, and we are led to infer that the boys outnumbered the girls. Changes in the relative numbers of papers considered may account for some of the curve movements on the five diagrams shown.

But the results follow very closely those that have been reached by similar studies, both here and in America. There is the same rapid decrease in the choice of father or mother, who play so important a part in early years, followed by an increase in the choice of immediate acquaintances, which rises steadily with the girls to thirteen years, but with the boys reaches its height at eleven, and then rapidly decreases. The next stage, the choice of persons of public note, heard of but not known, is, as usual, more strongly marked among the boys than the girls, but to a more marked degree than in other studies, reaching its highest point among the girls' replies at twenty per cent. at twelve years of age, whilst at the same age the boys' replies under this head reach sixty-one per cent. The tendency of girls to choose a member of the opposite sex more often than boys is also emphasised, and this is most marked in the choice of public characters. Of forty-one of these mentioned only three are women ; two women writers are noticed once each, and the Queen (of Belgium), who has been dead some years, four times. Here again the question is raised whether girls are often enough introduced to the work and lives of even the comparatively few women who play or have played a notable part in public life, and whether it would not be better if they were. M. Varendonck urges the need of wider reading, especially among the poorer children, and calls attention to the blighting effect of poverty upon the formation of ideals, with its inevitable reaction. T. G. T.

L'Educateur Moderne. (PAULIN AND CIE. PARIS.) March–June, 1909.

The fourth volume of this journal covers somewhat wider ground than the earlier issues, dealing as it does more directly with the school curriculum and after school needs ; with this increase in general interest, however, there tends to go a decrease in scientific value. The March issue is almost entirely concerned with the teaching of French grammar and composition ; much of what is said would apply equally well to difficulties in our own schools. An article in the April number on "Education and Respiration" gives some useful advice on methods of developing proper breathing ; another is an interesting discussion on "Children's Courts in other Countries," with an account of our own "Children's Act" ; a third is a very sane consideration of the relation between the school and the workshop. In the May issue, an article on the Psychology of Reading deals entirely with the adult point of view, and is mainly concerned with the reactions induced in the mind of the reader and the reproduction of the author's ideas thereby.

Each number has an introduction by the Editor, M. Gabriel Compayre, that for June gives a brief review of the progress and present position of Child-Study, with a promise to continue the subject, and concludes with a review of two notable French works on child psychology, "L'Evolution psychique de l'enfant," by Dr. Henri Bouquet, and "Le Premier Eveil intellectuel de l'enfant," by M. P. Cramaussel, the addition of which to our library would be welcome. This June issue also holds three readable articles, one telling how a blind man acts as teacher of philosophy in a lycée, another describing after-school instruction in Baden, and a third, a sane discussion on the need of well-written stories for young girls. It concludes with the third brief contribution of maternal notes on, "From one day to ten years," the little lad being now eleven months old. His physical progress is joyfully recorded ; he begins to speak, but 'tis a language of his own. T. G. T.

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Child-Study.

The Journal of the Child-Study Society.

NORMAL DEVELOPMENT FROM A PSYCHOLOGICAL POINT OF VIEW.

By Professor C. LLOYD MORGAN, LL.D., F.R.S.

Delivered before the Manchester Conference, May 7th, 1909.

I suppose that most of us are more or less intimately concerned in education; and I dare say some of us, perhaps in an outburst of platform oratory, have proclaimed that the aim and end of education is not to impart information, but draw out, develop, or educe (here will come an etymological parenthesis) the latent powers of the mind. I once heard a speaker wax eloquent in likening the child-mind to an inherited photographic plate bearing the invisible impress of ancestral exposure. On his view the process of development was the bringing out of the hidden picture through the influence of the reagents supplied by the environment, partly under the ministry of the teacher. That is one mode of conceiving the process of development. It is not quite that which is accepted by the biologist or the psychologist. According to their conception, development is a process of progressive organisation; and, as men of science, it is their business to ascertain the conditions under which it occurs. No doubt they speak occasionally of the inherited potentialities which in the course of development are rendered manifest. But their real concern is not with potentialities, but with actually existent conditions. A potential fire never yet boiled an egg. I suppose I inherited a potentiality of riding a bicycle, of speaking here this morning, and of playing golf after a fashion to-morrow afternoon. The fact that I do these and other things may be taken as evidence that I have the ability to do them. Circumstances have, so far as these matters are concerned, afforded an opportunity for the development, after a fashion, of such modest potentialities as I possess. I fancy that I am not altogether peculiar in cherishing the conviction that there are certain other things which I could have done pretty well if only I had been given the chances which some lucky fellows enjoy. But even

supposing I am not here misled, as is not improbable, by self-conceit, there must be something actually present in my nature which might have been so developed, though, as a matter of fact, it has not. What I wish to make clear at the outset is that development is always the further organisation of that which is already in some degree organised. The oft-repeated statement that education draws out the latent faculties, when this statement is rightly interpreted, is unquestionably true. The function of education is to bring the individual into vital touch with the environment natural and social, with all its meaning and all its significance. There are, therefore, two factors, the individual and the environment; and the wise old saw emphasizes the importance of the individual factor, to the development of which commerce with the environment is a necessary condition, and sound education an effective means thereto.

Understanding then by inherited ability or potentiality an existing organisation capable of further development, what shall we understand by *normal* development? I would suggest that, in accordance with the view of education taken above, we should regard that development as normal which tends to establish effective relations with the normal environment. Abnormal development may be the result of one of two causes: either (1) abnormal organisation due to hereditary defect, or to some widely divergent peculiarity in the inherited nature; or, (2) the outcome of abnormal conditions under which the further organisation gets some unnatural twist. In other words, abnormalities of development may be either inherited or acquired. With such abnormalities I have here and now no concern. My modest task is to consider briefly, and of necessity in general terms, the course which mental organisation pursues in the vast majority of ordinary human folk.

I do not find even this modest task an easy one. I shall be tempted, on the one hand, to employ technical phraseology and inflict upon you a psychological lecture. I may be tempted, on the other hand, to exhort you to follow a worthy line of action. In my anxiety not to deliver a dull scientific lecture, I may preach an even duller sermon. What I ought to do, and what I wish to do, is to read an unpretentious paper, in the hope that it may contain, perhaps, a little that is suggestive.

If this were the lecture of which I spoke I should endeavour to show how the foundations of the mental life of the individual child are established; how the baby comes into the world a going concern, with a bodily organisation fitting it to respond in certain ways to the sights, sounds, touches, pressures, and so forth brought to bear upon its sensory endowment; how the responsive activities themselves are accompanied

by sensory feelings; how, in short, there come into being the primary data of the individual mental life. I think that all this would prove neither very interesting nor very helpful. It will suffice for us to assume that the child a few weeks or months old has, somehow, a certain amount of mental organisation which is capable of further development.

Again, if this were a psychological lecture I should have to try and trace the manner in which the child gradually acquires further and fuller acquaintance with the things around it, so as to behave intelligently in their presence, and to get the greatest amount of satisfaction out of them, and then passes on to gain some knowledge about them, and conduct himself as a rational being. I should speak of the earlier stage as perceptual development in relation to the immediate situation; and of the later stage as ideational development through which there arises systematic knowledge, and the life is more or less completely ordered in accordance with a settled plan or purpose, dimly or clearly realised. Thus it would be my aim and object to show that the normal course of development in the human being is from the initial instinctive foundations, through naïve practical experience of the environment, to the systematic knowledge in terms of which the world, the self, and the course of development may be interpreted. That would be the plan I should adopt in a psychological lecture. What I propose now to attempt is to illustrate the distinction between what I have termed practical acquaintance with the surrounding world, and systematic knowledge about it.

Those of us who are concerned in education have to minister to the development of both—we have to foster practical acquaintance with things and also systematic knowledge about them. And the two are so closely connected that we sometimes fail to see that there is any distinction to be drawn between them. Perhaps we regard the suggested distinction as a bit of that hair-splitting so dear to the heart of the psychologist. Well, if I did not regard the distinction as both valid and valuable, I should not venture to address you on the subject this morning.

It is not to be supposed that, as the child rises under normal development to the state of a rational being, the organisation of any part of his intelligent activities should remain wholly uninfluenced by, and have no influence on, the systematic knowledge he has already acquired. The most one can do is to indicate certain intelligent activities which are developed in relative independence of any knowledge of the principles under which they may be rationally interpreted. The best examples are to be found in the field of skill. Skilled activities, in the sense in which I am using the words, are very highly developed in

animals. Of course, I refer to the natural output of activity in relation to the normal environment, not the diversion of such skill in the tricks of trained animals in a circus. I would only draw attention to the flight of the swift, the springing of the chamois from rock to rock, amid the Swiss mountains, and the graceful evolutions of the seal in his native element. The perceptions of such animals are extraordinarily delicate and rapid. The co-ordination of motor response is marvellous in its accuracy. The linkage of perception and activity is a well-nigh perfect example of organisation. Within the developed experience, sights, sounds, and scents have acquired meaning for modes of behaviour which are exactly appropriate to the circumstances. But I conceive that the animal is destitute of any systematic knowledge of the principles of biological mechanics. It is incapable of explaining the why and the wherefore of what it does so supremely well. Nor has it framed general conceptions of the purpose and end of its life, and apperceived the significance of these skilled activities in relation to the fulfilment of that purpose. It has no developed systematic knowledge in terms of which its life may be interpreted. That life is founded on practical experience through which its varied situations have become full of meaning for behaviour. We have two words "meaning" and "significance." I will ask you to allow me to restrict the word "meaning" to that which is suggested as the outcome of naïve practical experience. It is rule-of-thumb meaning, unexplained and uninterpreted. I will ask you to allow me to restrict the word "significance" to the suggested relationship to some part of systematic knowledge.

Now it would be absurd to contend that human skill is destitute of significance. Of course it is utilized in subservience to the purposes of our rational life. But I am prepared to contend that the development of the skill itself may be relatively independent of systematic knowledge in terms of which it may be interpreted. I suppose many of you ride a bicycle. I may take it for granted that you have sufficient skill to avoid stones on the road, to turn corners neatly, and to escape destruction by the ubiquitous motor-car. All of this is mainly the result of practical experience. Practice has made perfect. The sight of a corner to be turned, the hoot of the motor-car behind you, have meaning, and suggest the appropriate movements. I cannot say how far you know what these movements are. Do you know what movement of the handle-bar you make when, let us say, you are beginning to tumble over to the left? Do you realise that the art of riding is the art of recovering from a vast number of incipient tumbles, now to right and now to left? Can you explain the process and say in what way it is related to the principle of inertia? If so, and I am quite ready to give you the fullest credit for

systematic knowledge, you are able to explain and interpret your skill. But I am quite sure that there is many a boy of ten, who rides as well as or better than you or me, who does not know and does not want to know any of these things. To ride is good enough for him, and he leaves explanation to those whom it may concern.

There is an interesting point in this connection which I may mention. In riding the bicycle, leaning to the left and moving the handle-bar so as to turn to the left are inseparably linked. So much leaning to the left means for practice so much turning to the left. Now mount a tricycle on one side of the arch of a well-made road. If I were a betting man I would wager a good round sum that you will run into the side-walk. Anyhow, I did so when I borrowed a tricycle a year or two ago ; and I could not at first understand why again and again I did so stupid a thing. It was only when I realised that the position of the tricycle made it lean, and that leaning meant, for behaviour, turning in that direction, that I could interpret my own stupidity. I then, and not till then, apperceived the significance of what I did, silly as it seemed, in relation to the basal principles of bicycle riding, which are different from those of tricycle riding. I had to compare two slightly different situations, to analyse out certain distinguishing features, and to bring these into relation with such systematic knowledge as I possess.

Remember that my purpose is to show that, although practical experience and systematic knowledge are closely related, the former may undergo normal development in relative independence of the latter. Seeing the short time at my disposal, I cannot illustrate the matter more fully. I would only ask you to review your own mental processes and enquire whether there are not many things which you do for no better reason than that you have found, perhaps stumbled on the fact, that certain results follow.

Now my belief is that in the normal development of the child and man two sets of organized data grow up side by side, first, the data of practical experience acquiring fuller and fuller meaning, and secondly, the data of systematic knowledge acquiring fuller and fuller significance : that these two sets are closely related, inasmuch as the data for the second set are founded on those of the first ; that they are relatively but only relatively independent, in the sense that practical experience may not be and need not be systematically interpreted, and that children and men differ in the strength and persistence of their itching desire for interpretation, the *cacoëthes explicandi*. But I will ask you to allow me to assume that the ideal of human development is the complete organization of both sets with the latter set predominant, since after all man is, at any rate ideally, a rational being.

Before passing on I must say a few more words about some of the characteristics of practical experience. In the first place it involves acquaintance with things and processes so that they come to have meaning; in the second place it is essentially connected with activity and behaviour; in the third place it is full of emotional tone, interest, satisfaction or the reverse, the joy of successful living, the pain of thwarted or misdirected energy. And these three places are not three places, save for descriptive purposes, but one place. They are all constituent parts of the one thing we name practical behaviour. But though practical behaviour is in a sense, and a true sense, one thing, since it is a part of the functional activity of one organism, yet it is in another sense many things. Inasmuch as many more or less isolated situations are dealt with, there is a unity of practical experience, since the being who behaves is throughout one being: but it is not the unity of completely systematized knowledge, because the actual experience is in patches, and there is no one view of all the patches and no imaginative filling-in of the gaps between the patches.

I find it difficult to illustrate this point adequately with due regard to brevity. A dog lies before the fire in his master's study in the morning. They go out for a walk in the afternoon. Then the dog lies down again by the fire. Does he connect the morning fire situation with the evening fire situation, with a continuous story of the fire in the interval, kept up, let us suppose, by the maid who puts fresh coals on? Does he connect the two situations as actually presented with intervening situations which might have been presented had he been there all the time? I doubt it. But if he does, he has so far the beginnings of systematic knowledge concerning fires. You may ask whether I fill in the gap in this way. I reply, without hesitation, "Yes: I do, if I take the trouble to think about it." Just in so far as we have an interpretation of this world, we piece up actual observation with possible observation, so as to make one connected story. My second illustration shall be of a different kind. Careful study of animal life brings with it some surprises, this among others, that the animal seems in some cases to fail to grasp that two situations, to us so much alike, contain common elements. A clever dog was taught to open a box by lifting a latch, and thus allowing the door to swing open. He was never allowed to find anything inside, but, in reward, was fed with biscuits by hand. Then the box, with a piece of meat inside, was placed in a courtyard. The dog scratched at the box to get at the meat, but he did *not* lift the latch. The meaning of doing so, for him, had always been biscuits from the hand. It had never meant getting anything from inside. He seemingly failed to grasp that the familiar

situations had supplied him with the means of dealing with the new situation—that his old experience might be utilised in a new way.

I am afraid I must be content with so meagre an account of the comparative patchiness and disconnectedness of practical experience as such. In the normal development of the human mind this patchiness is done away with, and connections are established. We may trace the change in the study of child-life.

I have already hinted at the method by which this is accomplished. The situations are compared and analysed; attention is directed to certain important, but not always obvious features which are common to similar or slightly diverse cases. The extracted results of such a process are re-combined into a schematic form, which does not exactly correspond to any one of the compared situations, but comprises what is essential in all of them. Some of the patches in practical experience afford the data which coalesce to form an interpretative patch of systematic knowledge. For systematic knowledge as its development begins is itself patchy. Connections *within* the several patches are becoming evident, but connection *between* the patches has not yet been traced. That only comes when the patches are compared and brought together into groups; when a bigger schematic form for the group of patches is developed; when the perceptual parishes are seen to form parts of one ideational country. The development of systematic knowledge is only complete when the connection of anything with everything else is regarded as susceptible of interpretation. Note that I say susceptible of interpretation. No one has systematic knowledge adequate to the full interpretation of *everything*, or indeed, the *full* interpretation of anything. After all, one can only indicate the tendency of normal development in the ideally rational being. That tendency, in a word, is toward *one* all-embracing system of knowledge, within which everything is interpretable—if not now, some day.

My friends, I am really painfully aware that I can only give you the barest sketch of what seems to me to be the goal of the normal development of child and man. And I suppose you hardly wanted me to come here to tell you that the whole matter may be at any stage compressed in the brief formula:—Further organization on the basis of the organization so far reached, tending towards complete unification. Still, I venture to think that some of us who are practically concerned in affording aids to development may wisely pause from time to time to think the matter out in the most general terms. I believe such thought may help us when we return to details; for are they not details within the rational scheme?

I suppose there are few of us who, when they try to think at large

on the subject, and to compare the actual with the ideal, are not weighed down with the consciousness how far their own mental system falls short of ideal unification. Here and there we have succeeded in making some few patches coalesce into one partial schematic whole. But how terribly patchy much of our knowledge remains. Let me illustrate from my own bitter experience. History is for me a matter of occasionally purple patches set in a wilderness of arid ignorance. I am sorry to have to let you into the secret of such an appalling state of things, and I must beg of you not to give me away in Bristol. Alas, I am only telling you the facts of the case. Of bits of history, certain salient situations in history, I have some knowledge. Shall I, since I am indulging in confessions, tell you that these purple patches surround the central core of interest of some novel, some play, some one of the greater and more literary historical works? I have sufficient of the systematic tendency to do something to extend the patches by reading around the subject. But that of which I am so distressfully aware is that such English history as I know is lacking in the connectedness and continuity of one progressive development; that it is so largely out of touch with what little I know of European history, that the relations of each with Ancient History are so inadequately grasped; and when I read *The Crisis*, or *The Crossing*, I am shocked at my own lack of acquaintance with what has taken place in the United States of America. To be honest, I do not think that I am a solitary and isolated example of this kind of thing. I even venture to suggest that most of you, if you survey the whole vast field of knowledge, will perchance be ready to confess that you too are not omniscient.

Do you, however, if this should be the case, realize that it is a defect which you would fain remedy if opportunity arise? Do you feel that in these or in some other fields of thought your existing organization is susceptible of further organization in the direction of more complete unification? Are you really dissatisfied? Are you prepared, if this too busy life permits, to put forth endeavour? If so, you will perhaps be ready to take my final point. It is this, and I do not think that too much insistence can be laid upon it: that normal development in the field of systematic interpretation is not and never can be only knowledge; it is, and must be, emotional interest and volitional activity also. Did time permit, I should urge that accompanying the unification of knowledge which, from one point of view, is the goal of normal human development, there is a unification of interest and emotion and a unification of the whole field of volitional endeavour. But my time is up and perhaps I have already wearied you.

GROWTH OF IMAGINATION.

By J. W. SLAUGHTER, Ph.D.

Delivered before the Manchester Conference, May 7th, 1909.

THERE are two periods of development marked in greater degree than others by imaginative activity; one is in early childhood, roughly from three to six, and the other is in mid-adolescence. The term "growth of imagination" is probably a misnomer, as the proportion of imaginative to the rest of life, as well as the imaginative range, is dependent rather upon the growth and direction of emotional dispositions than upon any change in the power of holding and using images. The apparent diminution in imaginative activity between six and eight is accordingly to be understood as an alteration in the instincts and emotions showing itself in the altered kinds and directions of interest. The world is no longer so easily referable to personal agencies; the mechanics of things demands investigation, and this particularly as things are not now so much to be seen as to be used. Interest and with it attention are therefore withdrawn from the world of larger appearances and directed along the lines of rapidly increasing activities and uses.

Of early childhood, the "age of imagination," as Professor Sully calls it, is the most characteristic feature, and the one which gives to children a charm which does not belong to any subsequent time. In returns from an inquiry into the attitude of women, and especially girls, toward motherhood, it was overwhelmingly evident that beyond the first helplessness the characteristic which makes children attractive and parenthood desirable is the exploring and inquisitive imagination. It is not clear from the individual studies that have been made, at what time it is certain that children are capable of reviving experiences in the form of images; the ordinary assumption that the little child's head is full of things not yet come to expression must be dismissed as a part of the obsolete "empty receptacle" interpretation of mind. The conditions of revival are not present in any pronounced degree during the first and well into the second year.

The record is of a perceptual kind, and perception, in its turn dependent upon the co-ordination of activities, is obviously so unformed during the first two years and so constantly modified through growth,

that its preservation as image is not yet possible. The whole of this earliest period is, as everyone knows, given to the experimental forming of acquaintanceship with objects in the environment. It appears also that speech is at first associated with perceptions, and not at all with images; it is more than probable that the use of words furnishes the necessary motor transition from perception to perceptual revival or images. Unfortunately, the first stages in the language of childhood have not been studied with these matters in view.

During the third year it is certain that images are increasingly formed and used. The earliest memories of older persons frequently date back to the third year. The beginning of the fourth year may be regarded as the opening of the age of imagination. Its chief characteristic is the exercise of the mythopoetic function which provides for childhood a time comparable in many ways with the myth-making era in racial development. In no other respect is the child so markedly like the savage, or to state it in more agreeable terms, is the savage so like the child. Every object in the environment is, or is the dwelling-place of, a personal agency which is accountable for all that the object does and is pleased or displeased with all that happens to it. It is well-known that for the savage the world is so completely peopled with agencies, that the greater part of life is occupied in dealing with them, either in outwitting, or in placating, or in obeying them.

A myth is the first stage in explanation; causation is regarded as wholly personal, and both description and narration fall into the form of story. No anthropologist of the present adopts the old belief that a savage story is merely a story and has no further implications; he holds, on the contrary, that the story is an account, the first recorded, of the human being's reaction to his environment in the way of accounting for its occurrences, or in other words its explanation. Mythology provides the soil or matrix from which all subsequent developments of culture arise. It is not so easy, however, for civilised adults to see that mental development is an individual as well as racial affair, and that the characteristic stages in this development are the same. It is not so clear to many parents and teachers with a taste for rationalism and what they call truth, to understand the significance of the age of imagination. They endeavour when asked a childish question to reply in terms of what they consider truth, which is certain to be something meaningless for the child; with it, as with the savage, explanation consists in telling how somebody does something. The savage imagines that the thunder is caused by some agent like himself hidden behind the clouds beating a drum, or otherwise making the noise. When the child has heard that this is due to electricity, the

latter merely becomes the name of the person responsible for what is taking place. It appears then that to attempt any other kind of explanation is simply futile and a straining at maturity. To meet the child at all is to meet it on the plane of mythology and fairy and nursery tale. The other point mentioned in connection with the savage is equally true of the child, that further development is out of this mythological soil, and if it is poverty-stricken, no growth of generous and healthy proportions can take place. So, parents who are afflicted with pinchbeck consciences regarding truth may console themselves with the fact that imaginative sympathy with the child is for the latter's welfare.

These observations also have their application to the solicitude exhibited by many elders in regard to children's lies. The one necessity here, as elsewhere, for the understanding of children is to remember the fact of development. No characteristic of these earlier stages may be regarded as permanent; some modification is, of course, taken into the final constitution of character; so were there any truth in the accusation of lying brought against children, it does not furnish ground for worry. Parents should remember that children have no moral sense or conscience, which is an outgrowth of adolescence; they adopt that practice which they find by experiment to be successful. Even this applies only to the lies of children after six or seven; before this time the lie hardly comes within the definition of intention to deceive; it is rather an exercise of the imagination. To be sure, children like to impress their auditors; probably their parents do likewise. The imaginative world is so rich in material, and its forms so clear and vivid, that they become rivals of perception. Many children arrive only gradually at the distinction between memory of perceptual and memory of intense imaginative experience. The child's lie of this period is ascribable then to an element of freedom which must give way all too completely before the realism and mechanicalism of later childhood.

It appears, then, that through the operation of the myth-making imagination the world becomes a scheme of things in a larger sense than that of perceptual continuity; it is the latter carried a stage further. The environment becomes one of objects through the first stage of the projection of meaning, perceptual supplementation in terms of use; the world of hard and fast reality is created out of use experience. Additional meaning on the stage of imaginative projection is due to a transition from actual to possible use experience, the personal agent being the same in both cases. This is, at any rate with savages, a form of foresight; with children it expresses itself in two

tendencies additional to the making of myths. The first is the imaginative transformations of perceived things, what Professor Sully calls the "projections of fancies." Nothing, apparently, escapes the magical touch, but it is most effective with objects that have not become too hard and fast through habitual use experience. Clouds afford the best screen for this projective process; they range in forms from mountains to animals, and their transiency is probably connected with magical instantaneous creation and destruction. The moon with its faces, its old man or old woman with the bundle of sticks, with its increasing and decreasing size, has provided another opportunity for imaginative activity, which has played no small part in many religions, and children are often found to be moon-worshippers. Again, the flame of an open fire is with all children of this early age transformed into a multitude of living forms, which fact, added to the practical importance of fire, supplies abundant ground for its claim as an object of worship.

All distant, dark, or inaccessible places are filled with living things, which may possibly have to be dealt with in a practical manner. As indicating the extent as well as the manner of imaginative projection, Sully says, "The external world, as far as it is only dimly perceived, excites wonder, curiosity, and the desire to fill in the blank spaces with, at least, the semblance of knowledge. Here distance exercises a strange fascination. The remote chain of hills faintly visible from the child's home has been again and again endowed by his enriching fancy with all manner of wondrous scenery and peopled by all manner of strange creatures. The unapproachable sky—which to the little one, so often on his back, is much more of a visible object than to us—with its wonders of blue expanse and cloudland, of stars and changeful moon, is wont to occupy his mind, his bright fancy spontaneously filling out this big, upper world with appropriate forms."

A special characteristic of this age is the exercise of the emotions toward objects resulting from imaginative activity. So far from the child's new world being one of flimsy make-believe, it is often one of terrible reality. Nearly every child suffers from fear of the dark; no other screen is so prolific in shapes which easily become monstrous and menacing, to which is perhaps added something of the primitive sense of uncertainty and lurking danger which darkness has always implied for the race. Carelessness or brutality on the part of parents or nurses can make the night a lifelong terror. It is to be expected that fear will lend itself peculiarly as an attitude toward imaginary objects because of the anticipatory element in a possible experience.

The important instrumentality in the endowment of the world with meaning through the imagination is play of the imitative or dramatic

type. Here is something which constitutes a transition from possible to actual use experience; the result is a series of *quasi* real objects. Mere perception and mere imagination could not transform nursery furniture into ships, or mountains, or locomotives, or horses; but the use expression co-ordinated and directed by a play impulse supplies the material necessary for the transformation. In this department of toys the perceptual shape to be overlaid by imagination requires no more than a general likeness to what it is to suggest, otherwise its range of use becomes too limited. The exact copies of things found in the toyshops—animals, dolls, houses or machines—are more harmful than helpful to young children, and thus provide one among many other deplorable results of the commercialization of toys. The imagination with the play interest behind it does not even require materials to work with; acting out a part that has been observed is known to be typical of all children's plays. Putting the self into the *rôle*, and performing what are observed to be its characteristic functions, provides again the use element, so important in giving it meaning. Sully's case of the child identifying itself with the coal-heaver and being so immersed in the part as to object to its own name, provides an illustration. This is the manner in which an acquaintanceship is established with all the modes of activity within the ken of the child—with animals, with moving machines, and with persons carrying on the occupations of the community.

The imaginative activity brings a larger burden of practical fruits in the department of personal ideals than perhaps elsewhere. If it is remembered that the progress of life is in terms of ends more or less definitely pictured with their attendant circumstances, and that an end furnishes the motive as well as the direction of effort, then obviously the type of ideal which is of the character of personal ambition must be regarded as most significant. A number of studies have been made in this field, but those of greatest value have been carried on either by, or under the direction of, Professor Earl Barnes. The results published in his "Studies in Education" are intended primarily as an object lesson in child-study, but they may be taken as presenting an accurate account of children's ideals so far as they have yet been investigated. A more recent study by M. Varendonck, undertaken with the same conditions, has confirmed previous studies in all important details. Children were asked to write compositions as a part of the regular school exercise on the subject "What person, of whom you have ever heard or read, would you most wish to be like? Why?" Answers were obtained from all the school ages, and, later on, the investigation was supplemented by returns from younger children and from adults;

altogether, material was obtained to show what person children would like to resemble, and for what reason, for all the earlier periods of development. As adolescence is the time *par excellence* for the formation of ideals, it is a pity that no adequate study of them has as yet been undertaken.

Barnes' results show that the growth of ideals is from those suggested or supplied from the immediate environment, covered by his term "acquaintance ideals," to those described as "public character ideals." Of all the children from seven to thirteen years, 40 per cent. chose an acquaintance ideal, the distribution between the sexes being 30 per cent. for boys and 50 per cent. for girls. The course of the curve is a continuous decline from 65 per cent. at seven to 17 per cent. at thirteen, with only slight variations for the intervening years. With children under seven the choice is much greater still. Fathers and mothers provide 7 per cent. of the acquaintance ideals of boys, and 12 per cent. of those of girls, the choice suffering rapid diminution with the age scale. Public character ideals rise in direct correspondence with the decline of those based on acquaintance, constituting at seven years of age 24 per cent., and at thirteen 69 per cent. for boys and girls. One curious fact brought out by the study was that very few children obtain their ideals from stories or poetry; the figures for this category being 2 per cent. for boys and 5 per cent. for girls. Another interesting fact was found in the choice of an ideal from the opposite sex. Boys seldom choose a woman ideal, the exceptions being generally such cases as a little boy wishing to be like his mother or grandmother; with the girls, however, at seven years of age 26 per cent. choose men ideals, and this rises to 45 per cent. at thirteen. An investigation of adult women's ideals shows an increase to 50 per cent., or half. The figures are, of course, for America.

Further investigation is required to show not merely what the choice is and the reason for making it, but also the particular part it plays in the child's mental life. Preliminary studies in this direction make it clear that the ideal of young children is based upon observation, nearly always of one of the more obvious and striking functions in the life of the community. The fireman, the tram-driver and conductor, the carter, and similar personages constitute the most satisfactory ideals; nearly all are of a kind that children imitate in their plays. From this stage on through childhood the imagination is in the service of each new instinctive development showing itself in a new direction of interest. The desire always is to be the most effective and esteemed representative in any particular field, it being a matter of little difficulty to substitute the self for the person whose exploits are being imaginatively

considered. It is by dwelling in this manner upon the social types provided by the immediate or more distant present and by the past, that growth takes place in the sense of adaptation to a life in which these types play, or have played, a part.

As adolescence does not come within the scope of the present study, little need be said concerning its ideals. It is well known that this is the great blossoming time of life, its most characteristic feature being the formation and projection of ideals. It is the function of the imagination now to lay out plans, personal and otherwise, which it is the business of the rest of life to attempt to follow out.

NOTE.

Investigation into the Factors Influencing the Social Life of the Child.—Professor Karl Pearson has shown his sympathetic interest in the work of the Society by drawing up and printing, at his own expense, the schedule for the inquiry. Members are earnestly requested to assist in making the investigation known, and to fill in and return their schedules before the end of January. In order that the data for this study may be sufficient, the following appeal, signed by the President and the Chairman of the Society, has been made through the press to a larger public than our own societies afford :—

"The Council of the Child-Study Society have for some time, in their efforts to advance our knowledge of child-life, been looking for aid of a scientific character, and they approached Professor Karl Pearson, F.R.S., who, with his equipment and laboratory at University College, London, is in a position to render exceptional service. Professor Pearson has drafted a schedule for studying the factors influencing the social life of the child, which he desires to have filled in by heads of families or by teachers intimate with families. The number in the family need not be large, but particulars of father, mother, and at least two children are required. It is more important that the schedule should be filled up for families 'of the upper middle or professional classes.' The schedules are being distributed through the branch secretaries of this society in London and in other large centres, but we fear that it may be difficult in a short time to secure the number requisite to make the subsequent investigation by Professor Pearson worth while. We therefore ask your indulgence to appeal to your readers, to members of learned societies (literary or scientific), and to professional men and women, to assist this work by applying for a copy of the schedule, and taking the trouble (perhaps two or three hours' work) to fill in the particulars. In view of the widespread interest now taken by parents in the more scientific treatment of child-life, we trust that a good response will be forthcoming to our appeal.

"Parents who would prefer that the actual names of their family should be withheld can fill up a copy of the schedule on that understanding, supplying their name solely to the secretary, who issues the copy with a key number. Copies can be obtained from the secretary of the Child-Study Society, London, 90, Buckingham Palace Road, London, S.W."

M. L.

MENTAL FATIGUE: ITS SIGNIFICANCE IN THE ELEMENTARY SCHOOL.

By A. R. ABELSON, D.-ès-L.

Delivered before the Child-Study Society, London, December 9th, 1909.

Although disorders of the nervous system have undoubtedly existed from earliest times, they are now so numerous that their consideration has become a matter of very great importance. It has been pointed out by many writers that the great increase in population, the flocking to the large towns, the stress and artificiality of modern conditions have in recent years greatly increased the number and complexity of demands upon the power and endurance of the nervous system. We are living at a much faster rate, our interests are keener and more numerous. A continual and feverish desire for wealth we find side by side with a strenuous and bitter struggle for existence. To the child-student and eugenist this state of affairs is very significant, for it means the continually bringing into the world of a large number of children showing an inherited tendency to chronic fatigues and neuroses of all kinds. As fatigue is the beginning of most nervous disorders, it will be necessary to determine what laws dominate the healthy functioning of the organism. "In studying fatigue," says McDougall, "we are studying the sources of human energies, the modes and conditions of their operations, and, above all, their limitations." Mental fatigue causes destruction and disintegration of bodily tissue, and can thus eventually be the cause of serious mental and nervous defect.

We must therefore determine what education is necessary for the cultivation, in the coming generation, of a healthy mind and a healthy body. We must decide whether fatigue is necessary and to what extent we may fatigue the child. In late years investigators have been occupied with the problem of discovering what periods of work and rest are most necessary, how the subjects of instruction can be best arranged and how the periods of work and rest can be given for the child's most healthy physical, mental and moral development.

It must be remembered that man is an organism, and like all organisms will, if carefully trained, nourished and tended in the earlier stages (provided the conditions are favourable), remain healthy and resistant during the adult stage.

The question of the Mental Fatigue of Children is, therefore, of great importance. Under our present educational system all children are forced to do the same amount of work, and to do it under the same conditions, without regard to home and health influences. Many children attending our elementary schools are physically unfit to cope with the mental work imposed upon them. Moreover, it is cruel to call upon the starving, half-asleep child of the slum to do the same amount of work as the more fortunate child. It is cruel to the child, and unfair to the teacher.

The problem of fatigue is complicated by many factors. Besides individual differences, there are variations due to race and sex. There are variations due to external factors, such as ventilation, barometric pressure, temperature, etc. Physiological age, food, sleep, breathing, posture, health and condition of the individual—all, more or less, enter into the question. In the schoolroom the attitude of the teacher and child is often of great importance, and must be taken into consideration.

It is very important to recognize true fatigue, and not to confound it with weariness. Weariness is often mistaken for fatigue. Fatigue means a reduction in the total effective force of the individual, a diminution in efficiency—a diminished capacity of the organism to carry on any of its functions. Weariness or boredom, however, is a subjective emotional attitude arising from apathy and a lack of interest. Granted that boredom often accompanies a fatigued condition, yet it may appear even before fatigue has commenced, by giving the child dull monotonous work. Fatigue will depend, to a large extent, on the amount and intensity of the work done, but there need be little or no weariness provided the child takes an interest in what he is doing.

It used to be thought that, by constantly changing the lesson, fatigue was avoided. It is true that the child will recuperate somewhat during an easy lesson which has superseded a very fatiguing one. But by constantly changing the lesson, by substituting a new teacher, or by using interesting methods, we retain the interest of the child, and consequently the child is more likely to become fatigued, but boredom is reduced to a minimum.

I have long laid stress on the fact, however, that a small amount of fatigue induced under healthy conditions is far preferable to a condition of apathy and ennui. It must be remembered that, for healthy development, a certain amount of brain fatigue is necessary, just as a muscle which, when used, develops (within certain limits), and when unused gradually loses its power and wastes away.

Furthermore, a nervous system which has never had any demands made upon it is more likely to break down when called upon to do

some exhausting work, than a system which has become habituated to a certain amount of mental stress.

On the other hand, weariness is certainly unnecessary. We must therefore avoid this condition in the class-room as much as possible. We must make the child's life in the school-room happy, and the child is usually happy when he is busy at work that interests him. Moreover, I greatly suspect that weariness tends to more easily induce the condition of fatigue, and will also eventually weaken the child's power of resistance.

It is a well-known psychological fact that feelings of displeasure will facilitate fatigue, while pleasure will tend to decrease it.

Under present conditions there is too much desk instruction in our schools. In consequence the child has to remain seated for too long a time. This not only interferes with the free circulation of the blood through the digestive, sexual and lower organs, but it also makes the life of both teacher and child much more burdensome. The teacher is forced to suppress the child just when he is anxious to assert himself by doing something. The child should be allowed more scope for originality and initiative.

There is a subjective side to fatigue as well as the objective condition. By subjective fatigue, I mean the outward symptoms of fatigue and not the organic changes. Subjective fatigue is difficult to distinguish from weariness, for the symptoms are very similar. The child has a tired appearance, his movements are less active, there is general tiredness, and sometimes even drowsiness. There are also usually local sensations of fatigue. As in the case of weariness, the degree of subjective feeling will fluctuate with interest. It will even disappear or tend to disappear when the interest is great, even though marked objective fatigue be present. The will, the emotions, excitement, etc., will all have a great influence over subjective conditions. Hence the subjective feeling is very misleading, and very rarely gives a true idea of the actual fatigue present. Moreover, the objective side of fatigue is of far greater importance to us, for it implies that certain organic changes in bodily tissue are proceeding, and it is necessary for us to find out to what degree these changes can continue without detriment to the individual.

Fatigue is a chemical process taking place in the organic cells. The activity of brain and muscle results in the creation of waste poisonous material. The poisons enter the blood, and thus, through the circulatory organs, come into contact with other parts of the body. But there are other factors in the process of fatigue, for which a physiological explanation is difficult. The consideration of these changes will be deferred to the end of this paper.

We know, however, that fatigue results in changes in pulsation, modifications in the circulation and pressure of the blood. There is a slight acceleration of the beating of the heart, particularly when heavy fatigue is present. There are changes in muscular force. The study of these phenomena is both long and complicated, but it will be sufficient for our purpose to point out that we can measure some of these changes and thus determine the amount of fatigue present.

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The measurement of mental fatigue has been receiving considerable attention in late years. Towards the end of the last century, an outcry was raised in Germany against the existing system of education in elementary and secondary schools, that it caused a heavy strain on the children, arresting the development of body and mind, and doing much harm to the nervous system and eyesight of the scholars. A great interest was awakened in the study of brain fatigue, and many investigators sought suitable methods for measuring fatigue and for eventually determining under what conditions the child could be educated without his normal healthy development being affected.

Some of the methods suggested, especially those of the Italian school, were quite fantastic. It was suggested that the individual be bled (only a small drop of blood, of course) before and after a piece of work that had to be accomplished, in order to find out the changes that took place during the course of fatigue.

The method that seems to have received most consideration is the method of mental tests. This method consists in giving the children, before and after lessons, a set amount of work to accomplish, for it is found that fatigue results in a diminution of the effective power of the individual to do mental work. Work done under fatigued conditions is less accurate than work done under normal conditions.

The chief mental tests utilised have been dictation, arithmetic, reading, memory and combination tests. The method of mental tests, however, possesses many disadvantages, for many other factors must be taken into consideration. It is difficult to say what is exactly due to fatigue. Practice and "warming up" will have to be recognised. The presence of subjective symptoms will greatly affect the results. It is possible that any ennui present will also mask the true state of affairs.

Mosso, the well-known Italian physiologist, found that fatigue was accompanied by a reduction in muscular force, and he made use of an instrument called the ergograph, for measuring the change produced by mental work. The ergograph is composed of a thread passing over a pulley, and at the end of the string is tied a weight of two or more kilograms. At the other end of the string the middle finger is tied at

the second phalange, care being taken to completely isolate the muscles of the finger by having the arm and all the other fingers fixed. The middle finger is then made to lift the weight at regular intervals until it is completely exhausted. A lever is attached which traces the path of the movements of the finger on a smoked paper, pasted round a slowly revolving cylinder. Thus one is able to record the contractions and measure the total amount of work done.

For example, before a lesson the tracing may show that there have been forty-eight contractions, but after some fatiguing work the lever may record only thirty-eight contractions. If we multiply the sum of the heights of the tracings by the weight lifted, we obtain the measure of work done in ergograms. With the ergograph, as with the mental tests, one has to be dependent to a large extent on the goodwill and caprice of the child and on the interest he takes in the procedure. The experiment after a time becomes a dull and monotonous one. At first the child is enthusiastic, but when the novelty wears off he will probably lose all interest.

Dr. Myers and Dr. Rivers raise other objections to the ergograph. Increased interest and undue mental excitement lead to the performance of an abnormally large quantity of muscular work. The pain caused by confining the hand and arm may cause a reduction in the output of muscular work. And lastly—the influence of mental fatigue is not always detrimental to voluntary muscular work. There are instances when an unusually good ergogram is obtained after a prolonged period of intellectual work.

Before describing the æsthesiometric method it will be necessary to explain how the sensibility of the skin can be measured.

Weber found that when two points of a compass touched the skin at any part of the body, only one sensation could be experienced when the points were a short distance from one another. It was not till the distance between the two points was widened that two distinct impressions could be felt. Weber measured the minimum distance at which the two points could be felt as such, and found that this distance varied at different parts of the body. Griesbach, however, found that mental fatigue brought on a diminution of skin sensibility.

I have worked for a long time with the æsthesiometer, and have come to the conclusion that the change in nervous condition as shown by the æsthesiometer gives a fair indication of the fatigue present.

Nevertheless, the æsthesiometer has been severely criticised, and there are investigators who still maintain that this instrument cannot measure mental fatigue. It must be remembered, however, that the measurement of cutaneous sensibility presents many difficulties.

The investigator must touch very lightly, and the points should be quite blunt. The threshold should be obtained with as few touches as possible, otherwise after-sensations and local fatigue of the skin will make the measurement of little value. Care also must be taken that the two points touch the skin simultaneously and with the same pressure. The same area of the skin must be measured during the determination, any movement to the right or left, upwards or downwards, must give a threshold which will be of little value.

There are a few factors, moreover, which really should be taken into account, but these are, with the exception perhaps of digestion, of such small consequence that on the whole we can for our purpose ignore them.

Some experimental work has been done recently to show that simple motor action is slower when fatigue sets in. A person is made to tap, and it is found that the rate of tapping decreases with fatigue. Careful investigation, however, shows that other factors have to be considered, such as practice and "warming up."

Attempts have been made also to determine the amount of fatigue by the changes in blood-pressure. This seems to have given favourable results, but more work will have to be undertaken before we can definitely decide on the value of the method.

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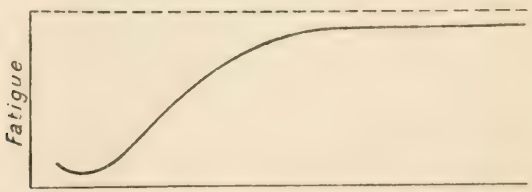
As a result of my æsthesiometric investigations I have found that mental work first produces hyperæsthesia. Further mental work, however, induces a gradual decrease in sensibility. As time goes on, however, the decrease in sensibility becomes more and more difficult, until a stage is reached when further increase is almost impossible except under abnormal conditions.

Although fatigue is always accompanied by a diminution in skin sensibility, it does not necessarily follow that fatigue and loss of sensibility follow exactly the same path.

The following curve will give a general idea of the path taken by



fatigue. The fatigue seems to reach a maximum when exhaustion begins to set in.

The path of fatigue will vary with the individual. With some

people fatigue sets in quickly, and further work is done under high pressure. With others, the fatigue sets in slowly, and they are able to work for some time without fatigue asserting itself.

Some people again (to quote Stanley Hall) are capable of suddenly summoning their resources for a concentrative and intense effort which leaves them soon exhausted, while others, lacking this summative power, resist fatigue by an endurance acquired by long-sustained effort. An explanation of this problem is given by Dr. Weichart, whose investigations will, if corroborated, lead to some very important developments.

Mosso found that fatigue results in the formation of certain products (lactic acid, carbon dioxide, and other substances) which are poisonous. Now, as is the case with all poisons introduced into the system, nature at once proceeds to set up an anti-toxin, and, provided the amount of poison introduced is not excessive, the anti-toxin is usually sufficient to neutralize the effect of the poison. We make use of this fact when we seek to gain immunity against certain diseases (small-pox, diphtheria, etc.).

Weichart found that when he injected into a mouse a small amount of serum extracted from a fatigued muscle, the mouse was able to do a more than ordinary quantity of work, and, moreover, possessed unusual resisting power. This is because the toxin, when introduced, sets up a supply of anti-toxin, which is easily able to overcome the small quantity of fatigue toxin, thereby giving extra power to the animal. Weichart then found that when the toxin was introduced in larger quantities, marked fatigue ensued; and when the amount was very large the animal died from exhaustion. He further found that by continually injecting small doses of toxin, the animal could stand many times the fatal dose.

In the same way it can be explained that the person continually fatiguing himself is, little by little, manufacturing quantities of anti-toxin, which enable him to resist fatigue more easily. Moreover, the organism is storing up reserves of energy which, under ordinary conditions, are not called upon. This will, no doubt, explain the fact that those races which have had to continually struggle for their very existence have acquired remarkable powers of endurance.

It is possible that the person continually over-fatiguing himself is producing more toxin than can be righted by the anti-body. In this way the condition of neurasthenia is produced, the constant overstepping of the limit of normal fatigue possibly resulting in permanent injury to the nerve-cells.

Side by side with this explanation is given a psycho-physiological solution to the problem by Dr. McDougall, without which the work of Weichart is inadequate for a complete elucidation of the fatigue question.

According to McDougall, the symptoms of fatigue are the expression of the relation between the amount of energy available at any moment and the resistances in the nervous system which this energy has to overcome. Thus, if the resistances are great when the available energy is small, the symptoms of fatigue will make themselves evident. If, on the other hand, a task is very interesting, great potential energy of the organism is called into play which easily overcomes the resistances, and it is for this reason that the person deeply interested in his work hardly realises that there is objective fatigue, for there are no outward symptoms.

He further explains that fatigue (Ermüdung) is produced by the accumulation of waste products of metabolism, and that exhaustion (Erschöpfung) is the using up of stores of potential energy through excess of katabolism over anabolism.

Dr. McDougall thinks that, in many cases at least, the chronic fatigues which the physician has so often to deal with cannot be toxic fatigues. They seem to imply rather the exhaustion of some of the sources of energy, which keeps the ratio of resistance to energy high in all parts of the nervous system.

A due balance between resistances and energies is essential to health.

"Suppose that," says Dr. McDougall, "as an innate constitutional peculiarity, the resistances are deficient relatively to the energies in an otherwise normal or well-endowed brain; we should expect the possessor of such a brain to be an excitable, sensitive person who, the great protective system being deficient, easily works himself to the point of exhaustion; exhaustion, rather than fatigue, will be his peculiarity. He is readily provoked to a great and rapid output of energy, and his brain does not easily return to rest; general excitement is slow to die away, and he finds difficulty in sleeping after any effort, for the condition of increased and predominant resistance is not easily attained; the system remains uselessly at work and wears itself out; there follows exhaustion secondarily developed, owing to the deficiency of the protective system of resistances. We should then get the typical picture of the hereditary or born neurasthenic; the disorder is brought on by any strenuous course of life, and its earlier stages are characterised by hyperæsthesias of all sorts, undue sensitiveness to all sense-impressions, general irritability or irritable weakness, insomnia, increased reflexes; the patient may have the power of working sometimes extremely effectively for a short time, but such work soon leads to exhaustion and leaves the patient incapable for a long time of again getting up a sufficient head of nervous pressure to renew his labours. It is, I think, in harmony with this view that some of our most brilliant and original intellects have shown

marked neurasthenic tendency, *e.g.*, Charles Darwin and Herbert Spencer."

It is one of the medical officer's first duties to look out for nervous defect in children. To children with weak nervous systems, school-life is a great burden. In our elementary schools, the weaker children are called upon to do the same amount of work as their more healthy comrades. Moreover, I am inclined to agree with Dr. Drummond when he says that a minor degree of interference with health from an unhappy, worried life at school is extremely common in children who probably never come under the doctor's notice at all. In some of these cases, the fatigue induced by the school-work, especially just before the examination, amounts to over-pressure, and many of these children grow up with impaired nervous systems, and the rest of their life is just as unhappy and unfortunate as the time spent in the class-room. The wear and tear which these children undergo is greater than people usually realise. The mental, physical and moral condition resulting is far different from that which the normal adult possesses. This is, I believe, one of the chief causes of those deviations from the normal appearing at the period of adolescence which make life unnecessarily burdensome.

The teacher should be able to recognize cases of children suffering from chronic fatigues and nervous disorders. He can make himself acquainted with the home conditions of any child he suspects to be of delicate constitution. The parents should be asked to state if there are any abnormalities in the health of their child. If the eyes are sunken or if there is a bluish discoloration under the eyelids, if there is a want of alertness and activity, if the child slouches and shows no enthusiasm either when at work or at play, if the child looks tired and sleepy, the teacher should lose no time in notifying this case to the medical officer. Other common "nerve signs" are disturbance of balance, twitchings of the muscles of the face, irritability, poor tone of the voice, and inability to attend to lessons. The child who is habitually careless is very often suffering from continual or chronic fatigue, and it would be advisable for the teacher to find out the real reason for this carelessness. The "lazy" child also usually has a very bad time, especially in the class of a conscientious teacher, but in many cases this laziness can be shown to be the result of physical and nervous disorder.

In the Congress for School Hygiene held in London two years ago, it was remarked that the heavy strain on young students in Russia and Germany is so great that it often results in cases of suicide. It is very rare that we have to refer to Germany in any way but in terms of praise for her advances in education. Nevertheless, the fact that suicides occur

from time to time shows us that the present system of education is gravely at fault. The German schoolboy is in constant dread of his examinations and of the term report. The child's mind is as a result haunted by all sorts of fears throughout his school life—fear of punishment for unsatisfactory work, fear of examinations, fear of bad reports, fear of parents, and fear of disgrace. The child lives in a constant state of mental worry, which only helps to more easily bring him into the condition of "Übrbürdung."

* * * * * *

Both teacher and child should have a knowledge of the fundamental principles of hygiene. Hygiene should be one of the subjects of instruction in the elementary school. We must teach children how to live: in fact, this is supposed to be the object, or one of the objects, of our system of education. It is a pity that we cannot also give the parents instruction, but a good teacher will impress upon his or her pupils the necessity of applying these principles in the home.

Bad sanitation and ventilation, and, as Miss Ravenhill has shown, insufficient sleep, and sleep under unhygienic conditions, all show their effects on the nervous system.

Girls in the higher standards should be instructed in the feeding and proper care of children. There is so much ignorance, inexperience and neglect shown by the mothers of the poorer classes in this country that, unless we can fit the mothers of the coming generation for their proper duties, there will still be as difficult a problem as ever before us. I have invariably found that well-cared for, healthy children experience less fatigue, and show more endurance, than those who are neglected.

Intelligent children are fatigued much less easily than backward children. Weak, nervous, and ill-fed children nearly always show indications of fatigue arising from the school-work.

* * * * * *

The work done in the afternoon is, generally speaking, inferior to that done in the morning. The afternoon should be devoted to lighter mental occupations and physical exercise. There is a certain amount of weariness produced during the course of the afternoon, the amount depending to some extent on the teacher and the attitude of the child. This can be avoided by having a smaller number of sitting hours and by devoting a part of the time to practical work and gymnastics.

There is very little to be said in favour of homework from any point of view. From the fatigue point of view it is very harmful to the child, especially to those who are reaching the age of puberty. It would be impossible to exaggerate how much permanent harm can be done to a

young girl by overworking her after the age of twelve. Young girls are more liable to functional nervous diseases, and it is at this period that the girl requires the greatest care.

In the case of boys and girls, moreover, homework means more sitting hours, and as I have already stated, this means interference with the free circulation of the blood. I need scarcely add that at the age of puberty any interference with the free circulation of the blood may result in serious and permanent harm.

At times, however, children ask to be allowed to do such work at home. There is no harm in giving them a very small amount of work to do. In fact, this attitude towards the schoolwork should be encouraged; it is an attitude which the teacher should make the aim of education. But the homework given in such cases should be such that it causes the minimum of effort and fatigue.

The habit of doing homework in the midday interval is nothing less than a pernicious one. Mental work after a heavy meal is injurious, and should by all means be discouraged.

I have found that physical fatigue, like mental fatigue, diminishes skin sensibility. In other words, physical work also induces nervous fatigue. The change in sensibility takes place in a very short time. But what surprised me very much was that when physical work is followed by repose there is an almost immediate return to normal skin sensibility. It is possible that this is chiefly due to the removal of the poisonous products by the increased activity of the circulatory and respiratory organs.

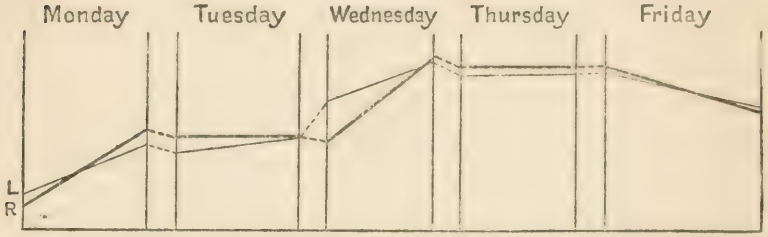
All heavy physical exercise, etc. should be placed at the end of a session, and preferably at the end of the day's work. Violent exercise of any kind between two periods of mental work is very harmful. In fact, the best form of recreation between lessons is rest or gentle exercise. As I have already explained, gentle exercise can remove the fatigue products, whereas during heavy exercise much more toxic substance is produced than can be righted during the exertion.

Physical exercise, gymnastics and play when not overdone are highly beneficial at the end of the day's work, but they should be succeeded by a period of rest. It must be remembered, however, that what is true for mental work is also true for physical exercise. The amount of physical exercise allowed to each child should depend on his physical and healthy condition. The medical officer should carefully notify those children who ought to do less exercise, and who should be treated with more care than the normal child.

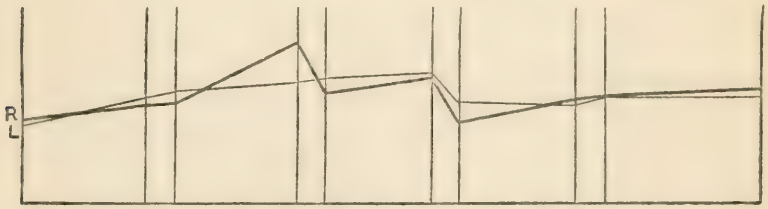
It appears that the average boy attending the elementary English school does not, as a rule, show any fatigue arising out of the school-

work. On the other hand, the girls show signs of marked fatigue. Mental work to them is a greater effort, and moreover they seem to take their schoolwork much more seriously and conscientiously.

The following curves show these results very clearly. The fall of the curve after Friday morning in the case of the girls is very interesting and instructive. It seems that they have reached a high stage of fatigue on Friday morning, and the feeling that the week is just ending causes probably both teacher and child to relax somewhat, and the tension is lessened to a great degree.



ÆSTHESIOMETRIC CURVE FOR GIRL, STANDARD V. (INTELLIGENT, IN GOOD HEALTH), AGE 9 YEARS 9 MONTHS.



ÆSTHESIOMETRIC CURVE FOR BOY, STANDARD VI. (STRONG, AND CAPTAIN OF SCHOOL, FAIRLY INTELLIGENT), AGE 13 YEARS 2 MONTHS.

R = Sensibility—R. cheek. L = Sensibility—L. cheek.

But the question of the fatigue of the teacher, though of great importance, has been receiving little consideration. The teachers in the elementary school, especially those entrusted with the training of the very young children, have to work much too hard. This is not due so much to the number of hours spent in teaching, but to the continual strain of the schoolwork. Except for the mid-day interval, the teacher's attention is not relaxed for one moment during the whole of the day. This is especially the case with those engaged in teaching in the younger standards. It is a very great mistake to overwork the teacher, for a tired teacher can never be expected to become an

enthusiast. I am afraid much time and effort is wasted which better methods could easily avoid.

The plan brought forward by the Board of Education for having smaller classes in our schools is a step in the right direction. This will do much towards avoiding over-work in school-teachers as well as cramming and otherwise faulty education of children.

Unfortunately the strain of the teacher's work is increased by stereotyped officialism and by the striving for results, and many teachers who leave college very enthusiastic acquire a revulsion for their profession. The teacher is at the mercy, very often, of the latest fad of the inspector, and it is not surprising that in many schools of this country the inspector's visit becomes a very distasteful one to the teacher.

In spite of this, however, it is very gratifying to see the increased interest taken by the teacher in the welfare of the children entrusted to his care, and I think that the time has arrived when educational officer, medical officer, inspector and teacher should co-operate and work hand in hand.

NOTE.

Tunbridge Wells Conference.—The next Child-Study Conference will be held at Tunbridge Wells, on Thursday, Friday and Saturday, May 19, 20 and 21. The subject chosen is "The Child and its Social Life." Sir James Crichton Browne, LL.D., F.R.S., who has kindly consented to be our President for the year 1910, will give the presidential address; The Hon. Sir John Cockburn, K.C.M.G., M.D., has also promised a lecture; Mrs. Higgs ("The Lady Tramp," and author of "Glimpses into the Abyss") will speak on "The Child as Citizen"; Mr. Russell, of King Alfred School, London, will lecture on "The Social Life of a Child at a Co-Educational School"; and lastly, Professor Karl Pearson, F.R.S., of London University, will lecture on "A Study of the Factors Influencing the Social Life of the Child," provided a sufficient number of schedules are returned to enable him to base his study upon them. We need not say that all who have filled up schedules will be welcome at our conference, and we sincerely hope that many contributors will be present to hear Professor Pearson's lecture, and to take part in the discussion that will follow. The management of the social side of the conference is in the hands of a large local committee, therefore its success is a foregone conclusion; hospitality will not be wanting. Also Tunbridge Wells, being a beautiful health-resort, is in itself an attractive spot for a week-end visit; being very near London, it would also be possible for visitors to make London their head-quarters. The conference secretaries are: Miss F. M. Watt (Hon. Sec. Child-Study Society, West Kent), 35, Church Road, Tunbridge Wells; and Miss Mary Louch (Hon. Gen. Sec.), Totton, Hants.

M. L.

LECTURES.

LECTURES TO BE DELIVERED BEFORE CONSTITUENT SOCIETIES FROM JANUARY TO MAY, 1910.

Birmingham.

Jan. 25.—Child and the Law. Charles Ekin.
Feb. 22.—Fact and Fancy in Child-Study. Professor J. A. Green, M.A.
Mar. 22.—Prehistoric Education and Recent Science. Miss Hoskyn Abrahall, M.A.

Dundee.

Lectures are expected from Dr. W. B. Drummond and Dr. T. S. Clouston.

Edinburgh.

Jan. 12.—Discussion on the Growth, through Play, of Children's Conception of Law (Based on Parents' answers).
Feb. 2.—Discussion on the Educational value of Traditional Games (Based on Teachers' answers).
Feb. 16.—Lecture on Heredity and the Child. Dr. C. W. Saleeby.
Mar. 9.—Discussion to what extent does the wrong use of leisure during the adolescent period imply an imperfect training in earlier school life? (Based on Social Workers' answers).

Exeter.

Feb. —Annual Meeting.

Arrangements are being made for a series of Demonstrations of the Methods and Principles underlying Kindergarten Work, by Miss Trenerr, M.A., and for a Discussion on the Moral Education of the Child, to be opened by Professor Forster, B.A., B.Litt.

Halifax.

Jan. 19.—Physical Imperfections as Hindrances to Social Development. Dr. Mumford.
Feb. 2.—Recent Reforms in the Education of Young Children. Miss Grace Owen, B.A.
Feb. 16 or Mar. 2.—Rev. W. Lawrence Schroeder, M.A. (Subject not decided.)
Mar. 16.—Rousseau's Conceptions of Negative Education. J. Welton, M.A.

Sir Harry Reichel, M.A., LL.D, Principal of the Bangor University, is expected to address the Society during the Session.

Liverpool.

Jan. 21.—Child Play. J. H. Gettins, M.A.
Feb. 11.—Manual Instruction. Mr. Legge (Director of Education).
Mar. 11.—Paper by Mr. Hawkesley (Medical Inspector).
Mar. 25.—Discussion on the Place of Formal Instruction.

London.

Feb. 10.—Address on the Social Relation of the Child. R. Langdon Down, M.A., M.B. (Tea, coffee and light refreshments will be served during the evening.)
Feb. 17.—Types of Children: Their Observation and Nurture. J. Lionel Tayler, M.R.C.S., L.R.C.P.
Mar. 3.—The Development of the Teaching of Domestic Economy in the Training of Girls. Miss M. Cade.
Mar. 17.—Evening Schools in the Light of the Adolescent Problem. F. H. Hayward, D.Litt., B.Sc.
Annual Meeting.
Apr. 7.—Subconsciousness. T. B. Hyslop, M.D., M.R.C.P.

West Kent.

May 19, 20, 21.—Conference at Tunbridge Wells.

REVIEWS.

The Church and the Next Generation. By RICHARD ROBERTS. James Clarke & Co. 2*s.* net.

This is an admirable book, and it is not too much to say that Sunday-school teachers would do well to study, and re-study, it seriously. It is soundly and sensibly based on the best and most recent views of the right principles underlying child-nature and the art of teaching. Mr. Roberts believes in, and bases his exposition on, Pestalozzi's saying—"It is life that educates." Not only are the principles clearly and simply set forth, but practical matters are comprehensively and convincingly treated in sufficient detail. The stages of child-growth and their dominating characteristics, the organization and grading necessary for these, and the matter and method for dealing with them, are excellently handled. After schooldays, the training of teachers, and other matters are also well done.

Only in one or two points would one wish that the author had said other than he has. The teacher is, and always must be, the vital and vitalising factor in all true education. His training, therefore, is a vital necessity and not a counsel of perfection. As the teacher is, so is the school: young and inexperienced teachers can only give us crude and often perverted education; ignorant teachers mean feeble and futile education; weak teachers achieve little and bad education. It is true that we must do the best we can while teachers are being trained—even so, the best teachers should be in charge of the youngest pupils—but no quarter should be given to the idea that we can have real education without real educators.

Inexperienced teachers could best try their 'prentice hands on children who are just finishing the primary stage. This will do the teacher most good and the pupils least harm.

Mr. Roberts seems a little inconsistent and temporising on the question of forcing what he calls "spiritual crises"—compare page 23 and page 107. If teachers look well after development, crises will look after themselves. In this matter, as in regard to examination and prizes, the author asserts his belief in the highest views, but finds excuses for others. It is difficult to find any true ethical justification for prizes, and examinations seem contrary to the whole spirit and purpose of religious teaching.

Again let it be said that this is a good book for Sunday-school teachers: one to read, mark, learn, and inwardly digest. H. H.

The Psychological Clinic. The alternative title is "A Journal of Orthogenics for the Study and Treatment of Retardation and Deviation." The Editor is Dr. Lightner Witmer, Ph.D., of Philadelphia. An Editorial describes the object of the journal as follows:—

"It is, therefore, the prevention and cure of mental deficiency and defect which must be made to hold the centre of attention. To gain this advantage, we propose the word *orthogenics*, as the name of a science which concerns itself with the restoration of those who are retarded or degenerate to a condition where normal development becomes a possibility." "The prevention and cure must be undertaken by Society and above all by the teacher in the schoolroom." Again, "the Special School cannot solve this peculiar problem of the backward child. It is to be solved only through a special ungraded class in close association with graded classes."

These extracts fairly set forth the leading motive of the magazine, and the articles follow fairly closely the lines indicated above. It would appear that the Special Classes referred to, correspond to what is proposed as an Intermediate Class in

England, between the Ordinary and the Special School. In the last report of the Education Committee of the London County Council, there is an estimate that 19 per cent. of the children in Special Schools, or in all 4,780, would be better in an "Intermediate School," while two-thirds of the children in Special Schools are considered likely to be able to earn their living, and on this ground are presumed to be probably not certifiable under the recommendation of the Royal Commission.

Whatever the classification adopted, the underlying idea is that the mental defect is not due to a permanent incurable condition, and comes within the purview of the skilled educationist rather than of the physician.

Nos. 2, 4, and 5 of Vol. iii. are before us; a striking and useful feature is a Summary of all the principal articles on the first page. The following are some of the articles :—

"A Cincinnati Special Class," by Louise M. Doll, showing successful results, many cases being reported in detail. "Report of a Year's Work on Defectives in a Public School," by Helena T. Devereux. Twenty-nine of forty-three children who during the year were connected with the Class were returned to grade work.

Professor Kirkpatrick, in No. 4, describes an excellent method of testing the hearing of school children in a rapid but fairly accurate way.

An article on "School Buildings," and others on "the Effect of School-room Temperature on the Work of Pupils," on "Physical Conditions of School Children," and on "Conservation of Health in the School-room," show that the problem is attacked from all aspects, and that the questions dealt with are such as would interest members of the Child-Study Society. The articles sustain a high level of merit and are a valuable addition to the literature of the subject. The Journal is issued monthly, except in the summer months, at a price of 20 cents. Its make-up is excellent.

R. L.-D.

Psychologie de l'Enfant et Pédagogie expérimentale. By Dr. Ed. Claparède. (Geneva: Libraire Kundig. London: Williams and Norgate.) Pp. 284.

The first edition of this work, reviewed in the *Paidologist* for March, 1907, was so favourably received that a second edition has been made necessary. The whole book has been remodelled and enlarged, the chapter on memory omitted, and a new chapter on mental development added; this, and the lengthy chapter on intellectual fatigue, are particularly worthy of notice. The book can be warmly recommended to any desiring a general résumé of the problems comprised within its title; it is clearly and interestingly written, many modern researches have been laid under contribution, while Dr. Claparède's name is sufficient guarantee of scholarly treatment. There are few books on this subject which contain so much matter, clearly stated, in so small a compass. A useful bibliography adds to the value of each chapter.

T. G. T.

L'Educateur Moderne. (Paulin et Cie.) Paris. 1 fr. 25 c. October and November, 1909.

In the October issue Mlle. Caron-Brieuse has a short but notable article on "Education corporelle des enfants." Her views on child-feeding are simple and somewhat drastic; their application, however, might not be quite as simple as she imagines. Children, ancient and modern alike, are apt to desire the things they see others enjoying, except where kept apart in a nursery; a simple regimen for children is only possible where there is a simple regimen in the home. Apart from this, some very useful directions are given, very briefly stated. Equally concise is a short article of two pages, on the "Treatment of Idleness," by Dr. Pauchet, filled with sound judgment; the same author appears again in the November issue, with a similarly brief, well-filled

article, dealing with the rôle of bread and of milk in the feeding of school children. In this issue there appears also the first of a series of articles on forgotten pedagogues by the editors, G. Compayré, this being devoted to M. Lévi-Alvarès, the founder of the "Cours d'éducation maternelle" at Paris.

T. G. T.

Archives de Psychologie, 1909. April; 3 fr. July; 3 fr. 50. October; 3 fr. 50. (London: WILLIAMS AND NORGATE.)

The April issue contains a "Contribution to the Psychology of the Adolescent," in which M. Aug. Lemaitre considers the experiences of eight lads who, towards the age of puberty, showed decided mental or moral aberration, often allied to physical weakness, together with that of a ninth who showed dissociation of consciousness with internal voices, these being followed by a lengthy account of the mental evolution of a degenerate. The July number is almost entirely occupied by a contribution from MM. Boade and Claparède, "Experimental researches on some simple psychic processes in a case of hypnosis." To the October issue M. Ed. Abramowski contributes a discussion of the part played by memory in the processes of comparison and recognition, based upon some careful and detailed experiments; in this number also Dr. J. Gouin describes a case of pure visual aphasia.

T. G. T.

BOOKS RECEIVED.

Added to Library of Society, located at the School of Economics, Clare Market, W.C., where they can be seen and loaned by members on application to the Librarian of the School.

An Introduction to Psychology for the use of Teachers. J. H. Wimms, M.A., B.Sc.

Education and the Heredity Spectre. T. H. Hayward, D.Lit., M.A., B.Sc.

The Primary Curriculum. T. H. Hayward, D.Lit., M.A., B.Sc.

The Early Education of Children. Laura L. Plaisted.

The Evolution of the Child-Mind. Mary Higgs.

Selections from Richard Jefferies. (Longmans' Class Books of English Literature.)

The Church and the next Generation. Richard Roberts.

Le Petit Bon-Homme Pierre, sa cousine Marie et Leurs Amis. Lottie King.

Report on the Employment of Children. Constance Smith.

An Experiment in Educational Reform and a Plea for a Royal Commission on Public School Education. Alex. Devine.

Defective Speech in Backward and Feeble-Minded Children. Bertha C. Downing, M.D.

Psychologie de l'Enfant et Pédagogie Expérimentale. Dr. Ed. Claparède.

Duty and Discipline Series Leaflets.—(1) Our Children, are we doing the best for them? (2) A "Spoilt Child." The nation's wasted wealth. (3) Old and New-Fashioned Notions about Education. (4) Sentimental England, are we becoming degenerate through lack of Discipline? (5) The Early Training of Boys in Citizenship. (6) Duty and Discipline in the Training of Children. (7) The Value of a certain "Hardness" in Education. (8) Wanted—a Fair Start in Life. Some thoughts for working mothers. (9) Save the Boys. (10) An International Lesson. An article in lawlessness in America. (11) Have we the "Grit" of our Forefathers? (12) The Decay of Parental Responsibility. (13) Endure Hardness. (14) The Every-day Training of Children. (16) Discipline and Training in the Prevention of Nervous Diseases.

National Committee to promote the Break-up of the Poor Law—an Outline of the Proposal.

Eugenics Review. Journal of Education. Educational Times. Child Life. Progress: Civic, Social, Industrial. Parents' Review. Zeitschrift für Pädagogische Psychologie, Pathologie und Hygiene. Pedagogical Seminary. Psychological Clinic. Archives de Psychologie. L'Educateur Moderne.

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